

Book excerpt: Esther Dyson describes the skills you need in the networked age. In Depth, page 81



Microsoft is closing the browser gap, but the server back end is still fair game for Netscape and other vendors. Buyer's Guide, page 75

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App licensing costs to rise

► Microsoft to kill concurrent licensing

By Gordon Mah Ung
and Sharon Gaudin

MICROSOFT CORP.'s plan to kill its concurrent licensing program next month has users worried and analysts predicting that software costs will multiply.

There are also fears that other

developers will follow suit, pushing up the cost of software across the board.

Redmond, Wash.-based Microsoft announced the policy change last week and told *Computerworld* that the switch won't affect many customers.

But because Microsoft is by far the dominant force in PC software, analysts and users insisted the impact will be a lot greater than Microsoft says.

And because it is unlikely users will respond by abandoning the Microsoft ship, they could end up paying four to 10 times more for their desktop applications, said Mary Welch, an analyst at Gartner Group, Inc. in Stamford, Conn. The extra costs would be incurred by companies having to buy additional licenses to cover all users.

"If there isn't any usage, why Licensing, page 110



James Bruce, MIT's vice president of IS, says ill-defined business processes created an expected two-year delay in the school's SAP project

Some SAP projects yield sticky mess

Implementing SAP AG's R/3 enterprise software isn't all beer and skittles. Experts say 90% of SAP projects run late because IS underestimates the huge job of tweaking 8,000 configuration tables to match the processes of a dynamic business.

And some users never do get SAP's highly structured software to fit their business, so they pull the plug. As one IS manager put it: "If you aren't willing to bend your business to SAP's model, the results aren't pretty."

Managing, page 68

INSIDE THIS ISSUE

CYBER-LANDRUSH FEARED

Domain name expansion could spur Internet address confusion. Page 2

ELLISON ROCKS THE BOAT

Oracle to shift apps to server; exclusive interview with CEO. Pages 3 and 6

Ponder goes yonder

AT&T's first CIO leaves to become big fish in small pond. Page 14

LOVING LAS VEGAS

Comdex/Fall '97 will feature the latest Web tools. Page 16

ESuite may boost Java, aid NC bid

By Gordon Mah Ung
New York

MORE THAN A decade ago, Lotus Development Corp. kick-

started the nascent PC industry with the first killer app, the Lotus 1-2-3 spreadsheet.

Now the Cambridge, Mass., company hopes to rekindle that lost glory with its ESuite set of streamlined Java-based applets.

Even more far-reaching, Lotus is betting that ESuite will lend legitimacy to the Java movement and the network computer.

ESuite offers IS managers a

ESuite, page 16



Pacific Bell's Andres Gutierrez: An application server may save the firm \$1 million

Middleware needed for Web projects

By Carol Sliwa

COMPANIES TRYING to build large-scale online applications are finding that the three-tier configuration of World Wide Web browser client, Web server and back-end database just isn't cutting it.

Users who are seriously scaling up their online operations are finding that they need additional software to function as a "traffic cop" to manage and process the rapid-fire trading of data between client and back end.

So, more and more companies are adding enterprise-scale

Web middleware, page 17

 **Talk about a ready-made Web application** — software distribution is it. Or is it? Led by consumer sales, Web-based software sales are expected to soar by 1999. But so far, corporations are holding back, citing licensing, purchasing, security and pricing issues. *Emmerce* follows page 82.



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UP FRONT

Selling simplicity

The network computer finally got some meat on its bony frame last week. But I still doubt it will challenge Windows desktops soon.

Lotus rolled out its much-anticipated ESuite, a set of office productivity application components that live on a server and are loaded over a network (see story, page 1). And IBM, Oracle and Sun said they'd collaborate to build a sort of network computer operating system called Webtop.

A major value proposition of the network computer seems to be that users would be willing to chuck their bloated office software in favor of applications that are simple and fast.

But although the simplicity pitch makes intellectual sense, it has always rung hollow with buyers. If people really wanted small, simple software, why are lightweight "Works" packages and shareware such duds in the corporate market? Ease of use sells, but simplicity never has. And ironically, ease-of-use features usually make software bigger, if anything, because they require so many space-hogging help screens and animated menus.

Ease of use sells, but simplicity never has.

There's no doubt that concepts such as component software appeal to corporate IS organizations that are sick of administering mini-mainframes on their users' desktops. But that argument is political as much as it is technical. Even if most users never touch 80% of the features in the software they buy, there's security in knowing they're there if needed. And frankly, a lot of people just like messing around with this stuff. It's fun.

You can argue that with component software, all the features you need can still be there; they're just stored on a server. True, but I suspect user patience will quickly wear thin if the network has to replace the disk drive.

Network computers continue to build credibility as an alternative to terminals. But for them to become serious challengers to PCs, software makers must create simple products that are easy to use. That's a tall order, even for the best of them.

Paul Gillin, Editor
Internet: paul.gillin@cw.com

THE FIFTH WAVE
BY RICH TENNANT

I tell him many times - get lighter laptop. But him think he know better. Him have big ego. Him say, 'Me Tarzan, you not!' That when vine break."

E-mail Rich Tennant at theywave@iitac.net

Concerns dog 'net domain plan

► Deployment could begin by Q1 next year

By Sharon Machlis

A PLAN TO create seven new top-level domain names for the Internet is moving ahead, backers said, with deployment expected in the first quarter of next year.

But critics said the plan could create a flood of cyberspeculators who will buy attractive names to resell for profit.

"It could establish a speculative name rush that might be comparable to the opening of the Cherokee Strip," said Martin Marshall, an analyst at Zona Research, Inc. in Redwood City, Calif., referring to an 1893 land rush in which about 100,000 people raced to stake claim to newly available territory.

Although the project has yet to receive formal approval and some key details are still being hammered out, some new registering authorities already are accepting preregistration requests for new domain names.

The Internet Council of Registrars (CORE) last week formally announced the selection of Emergent Corp. in San Mateo, Calif., to develop a central registry system for the seven new do-

main: .firm, .store, .web, .arts, .rec, .info and .nom. CORE and Emergent wouldn't disclose the financial value of the contract.

CORE's proposal is aimed at giving more organizations a crack at choice names. In addition, proponents said it will break unfair registration monopolies by InterNIC in the U.S. and its counterparts that now control country-by-country domain names such as .ca (Canada) and .uk (the United Kingdom). InterNIC controls the .com top-level domain.

But opponents fear that a host of new top-level domain names could create confusion on the Internet, as well as force some organizations to buy back their own well-recognized names from speculators.

For example, someone could register ford.firm, then force Ford Motor Co. to purchase it back at an inflated price. Domain name registration for the

new top-level domains would be first-come, first-served.

CORE representatives said they are working with intellectual property experts to hammer out an arbitration system that would try to keep some trademark disputes out of court.

They also said they will have a system that will allow companies with "globally recognized trademarks," such as IBM, to be

registered for protection across the seven new names. But such a system isn't yet in place.

CORE's current proposal wouldn't wade into the politically sticky issue of whether InterNIC should still control .com. In-

stead, it was designed to supplement the existing system.

The project is still awaiting approval from the Internet Assigned Numbers Authority, which has expressed support but isn't expected to act before the U.S. National Science Foundation and the Clinton administration issue opinions on the matter. □

Although the project has yet to receive formal approval, some new registering authorities are accepting requests for names.

Microsoft hit with more antitrust flak

By Carol Sliva

MICROSOFT CORP. is getting hit from all sides these days.

At last week's Senate Judiciary Committee hearing titled Competition, Innovation and Public Policy in the Digital Age, Chairman Orrin Hatch (R-Utah) unveiled a browser licensing agreement that potentially could violate antitrust laws.

Microsoft's 1996 contract with Earthlink Network, Inc. called for the California-based Internet service provider to make Microsoft's Internet Explorer its default browser and forbade the company from telling customers that an alternate browser is available.

YOU HAVE TO ASK

Another browser could be provided only after a customer-initiated request.

Antitrust attorney Kevin Arquist, a former Federal Trade Commission official, said the licensing agreement set forth by Hatch "appears to be a textbook

example of an artificial entry barrier."

Another antitrust attorney who testified at the hearing, former Justice Department antitrust chief Charles Rule, also conceded there could be a potential violation of antitrust laws, although he cautioned that the circumstances involved in the license would need to be examined.

Microsoft's Washington lobbyist, Jack Krumholtz, declined to speak about the specifics of the licensing agreement other than to say, "It's all up to the user to use whatever browser they want. If we have an agreement with a [service provider] that makes Explorer the default browser, all you have to do is change the default. It's very easy to do." □

Web work:
A GAL THING

Does Internet-related work have special appeal for women? Perhaps so. More and more women from outside IS are being drawn into Internet business. We profile four Web pioneers.

www.computerworld.com/careers

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Oracle shifts away from client/server

► Will move to Web server-based architecture

By Randy Weston

ORACLE CORP. plans to move all its client/server applications to a Web-based, server-centric architecture by the middle of next year, *Computerworld* has learned.

"We're so convinced that having the application and data on the server is better, even if you've got a PC," Oracle CEO Larry Ellison told *Computerworld*. "We believe there will be almost no demand for client/server as soon as this comes out."

Ellison and Ron Wohl, vice president of the applications division at Oracle, stressed that Oracle won't abandon tradition-

al client/server applications if customers continue to demand them.

Oracle's applications currently are in a two-tier system with processing logic shared between the server and user PC.

The new platform will put all the processing and transaction logic on a server, and users will access the system through Java-enabled World Wide Web browsers on PCs or network computers.

Oracle may not be alone in the effort. Analyst Scott Lundstrom at Advanced Manufacturing Research, Inc. in Boston, said most of the large packaged application vendors are moving toward a thin-client model.

"Everyone is trying to lighten up the client. It's just that no one will come out and say it," Lundstrom said. "Really what [Oracle] is saying is fat client, two-tier is dead, which is interesting because Oracle is one of the last vendors to move away from a two-tier architecture."

Nike Corp. in Beaverton, Ore., one of Oracle's largest customers, supports the idea. But officials at the company said the vendor may be pushing them too fast toward a technology they aren't ready for.

"I applaud the direction because it will help get to [processing] efficiencies where we don't have them yet," said Sanjay Mehra, director of global information technology at Nike's apparel division. "But from a busi-

ness perspective, we don't want to be bleeding-edge."

If Oracle forces the issue, Mehra said Nike will pilot and test the system extensively before deploying it. "We will not go full bore," he said.

But General Electric Co., which is standardizing on Oracle applications, is ready for the move and applauded Oracle's push toward a network architecture.

"It's a big hit [with our IS

staff] as far as deployment and ease of management," said Roger Keller, supply-chain manager at G.E.'s Industrial Control Systems division in Atlanta. "The [current version] is a monster of an application to run over the network. Putting the Web in there with browser front ends is a no-brainer." □

& Oracle CEO Larry Ellison gives an exclusive interview to Computerworld. Page 6

3Com switch supercharges networks

By Bob Wallace

3COM CORP. this week will announce a versatile switching system that includes high-speed routing and support for two rival technologies: Gigabit Ethernet and Asynchronous Transfer Mode (ATM).

The vendor's CoreBuilder 9000 Enterprise Switch is a Layer 3 switch, which means it includes built-in routing capability at speeds of up to 56 million packet/sec. That can wean users off routers and save them money and manpower.

Sources briefed by 3Com lauded the switching system — designed to supercharge the largest user networks today and in the future — for its flexibility in supporting Gigabit Ethernet or ATM.

Today, users who want both high-speed switching technol-

ogies must buy two switches. But the CoreBuilder 9000 can support both in the same chassis, without add-ons. That saves users on equipment and costly systems integration.

Gigabit Ethernet is best suited for high-speed data-only backbones, whereas ATM can accommodate voice, data and video traffic in one pipe. It is expected that Gigabit Ethernet will fare well on campus LANs, and that ATM will do well on WANs.

"3Com has taken a very wise approach by staying agnostic," said one analyst who was briefed by 3Com and requested anonymity. "There's a need for both technologies, so there's no reason to shut the door on any one."

Alan Robson, director of network systems at Cox Target Media in Largo, Fla., and a long-

time 3Com user, agreed.

"This approach is right on the money because it's what users are looking for," he said. "Users don't want to have to bet on one technology. They want choices, which is what [the 9000] offers."

The CoreBuilder 9000 will ship in February or March. Pricing wasn't given. In terms of routing performance, the CoreBuilder 9000 puts Santa Clara, Calif.-based 3Com ahead of the pack, although analysts said a lot can happen between now and its ship date. □

Job search CONNECTS



Greedy IS pros who see only dollar signs. Unrealistic hiring managers who want the sun and moon. Frustrated recruiters who are bowled over by the staffing stampede. ...

The victims of missed job connections reveal how a bad staffing situation can be made worse.

Careers, page B4

DG wants a piece of Big Blue's bread and butter

► Legal battle focuses on AS/400, S/390

By Tim Ouellette

A LAWSUIT is simmering that could have ramifications in data centers around the world.

No, it isn't *Digital Equipment Corp. vs. Intel Corp.* or *Sun Microsystems, Inc. vs. Microsoft Corp.*

Try *Data General Corp. vs. IBM*, which one source said could see court action next spring.

Three years ago this week, Westboro, Mass.-based DG launched a patent infringement suit claiming that IBM built its popular AS/400 midrange sys-

tems and S/390 mainframes based on technology patented by DG in the 1970s.

Today, the S/390 and AS/400 play central roles in data center operations around the world and have garnered more than \$75 billion in sales.

The suit requests unspecified compensatory damages and an injunction against further sales of the two product lines.

STILL IN DISCOVERY

But right now, the case, which was filed in U.S. District Court in Boston, is still in the discovery phase, and no court date has been set, said DG spokesman Jim Dunlap.

IBM officials declined comment, and both sides have kept

mum about the whole process.

Usually, suits such as this don't see the light of day in a full-blown trial.

"It is the pattern of IBM to settle these types of cases out of court," said Esther Roditti, a computer industry lawyer and editor of the "Computer Law & Tax Report" in New York. Like the *Digital vs. Intel* suit, this case may result in a financial deal and probably won't go to trial, she said.

The seven patents involved in the suit dating from the 1970s deal with system memory and naming schemes. For example, DG claims that the way access control lists are added to memory objects in the AS/400 and S/390 came from DG effort. □

AT THE CORE

3Com's CoreBuilder 9000 switch

Number of slots: 14, and two more can be added for redundant control processors

Port densities: 126 Gigabit Ethernet, 112 ATM OC-12 or 24 ATM OC-48

Backplane: 87.5G bits

Layer-3 performance: 56 million packet/sec.*

Based on: Flexible Intelligent Routing Engine ASICs

Available: Q1 1998

*In later version



Jackpots don't come often for IS pros in Las Vegas and the Southwest. Careers, page 84

Dow Jones' Tim Andrews hits the road to learn users' needs. The Internet, page 45

Millipore depended on Ram Prabhu's upgrade efforts. The Enterprise Network, page 51

In this issue

NEWS

- 6 **Lotus overhauls** software to ease users' migration from CC-Mail to Notes.
- 12 **MCI quietly preps** a global service to let companies run wide-area networks over the Internet.
- 12 **The owner of Popeye's Chicken** and other eateries builds an intranet for franchisees.
- 29 **A planned merger** between two commodities exchanges could spark similar back-office marriages.
- 29 **European retailers launch** a Christmas shopping site to help Old World firms market chocolate, crystal and food online.
- 31 **E-commerce advocates cheered** a Senate panel's vote to bar local and state taxes on 'net sales until 2003 or later.

- 31 **Digital Joins** Fibre Channel fray with its StorageWorks line.

OPINION

- 34 **Technology sometimes dupes** us into overlooking common sense, Maryfran Johnson argues.
- 35 **In U.S. vs. Microsoft**, bet on Bill Gates, John Gantz says.
- 72 **Turnover among America's CIOs** has gone from bad to worse, Paul Strassman warns.
- 112 **Tech stocks dominate** Wall Street — for better and for worse, David Moschella writes.

TECHNICAL SECTIONS

CORPORATE STRATEGIES

- 39 **All aboard the 'net?** Not FundServ, which invests in private network links.
- 39 **Women IS executives find** you don't have to be one of the boys to break the glass ceiling.
- 39 **Choice Hotels launches** multipronged attack on obsolete systems for marketers and franchisees.

- 39 **Virginia Power embarks** on massive IT overhaul, moving from paper maps to electronic records.

THE INTERNET

- 45 **Companies test** electronic catalogs to trim office-supply purchase costs.
- 45 **Review:** Right Now Web helps product makers give technical support, access to FAQs.

THE ENTERPRISE NETWORK

- 51 **Users porting** Notes apps to Exchange could get help from a new Mesa Group tool.
- 51 **System Management Arts targets** event correlation software for users' specific troubleshooting tasks.

SOFTWARE

- 55 **Fleet Financial Group finds** new sales in a call center software application.
- 55 **Federal Express uses** messaging software to track parcels in its Memphis hub.

SERVERS & PCs

- 61 **Compaq's clustering strategy** promises to bring more processing punch to NT servers.
- 61 **Users find** faster access with tape storage. The cheaper medium is an integral enterprise tool, they say.
- 61 **IBM, Data General and Seagate Technology** are making workstation and server disk drives bigger and faster.

FEATURES

MANAGING

- 71 **Resources for IS managers:** Reviews of Year 2000 books; comic relief on the Web for help desk headaches.

ETC.

Company index	108
Editorial/Letters	34
How to contact CW	108
Inside Lines	114
Stock Ticker	106

Web team sentenced to week of hard labor

► *Au pair trial decision to be released on tiny Lawyers Weekly site*

By Sharon Machlis

REPORTERS FROM ACROSS the U.S. and Britain have been cluttering the office. Friends and family are calling to say, "I saw you on TV!" World Wide Web site traffic has exploded from about 30,000 hits one day to 800,000 the next.

It hasn't been an average week for the information technology staff at Lawyers Weekly Publications.

"It's been crazy. It's just been fabulous and madness," laughed Erin Moran McCormick, vice president of technology at Lawyers Weekly.

Life changed radically for the Boston-based company last Tuesday, when Hiller Zobel, the judge in the Louise

Woodward murder trial, decided he would announce his ruling on the postverdict motions over the Internet — and initially picked Lawyers Weekly as the site (www.lawyersweekly.com) to receive it. It is believed to be the first time a judge will announce a decision over the Internet, although rulings are regularly posted after being issued on paper. Court officials were concerned that clerks wouldn't be able to photocopy thousands of pages fast enough for the crush of reporters demanding instant access to the decision.

Later plans last week called for Zobel's decision to be sent to about a dozen news outlets for posting on their Web sites. Still, as the first announced site, Lawyers Weekly traffic remains high.

The trial of the 19-year-old British au pair accused of killing a baby in her care has riveted the public on both sides of the Atlantic. And suddenly, one of the world's most sought-after bits of information — will Zobel reduce or overturn Woodward's second-degree murder conviction? — would be available first on a Web site that was designed solely to handle traffic from attorney inquiries.

McCormick said the first inkling she had of her company's involvement in the move was when "I found out from my aunt leaving me voice mail, who saw it on CNN."

As curious surfers flooded in, the Lawyers Weekly site crashed about 4:30 a.m. EST Wednesday, around the start of the British workday. The site was back up about three hours later when the first staffer came in. It has been up and running since, with the usual T1 line for Internet traffic. There have been a few delays getting access. Other sites that mirror Lawyers Weekly have been prepped if more capacity is needed. For now, surfers are advised to hit reload after a minute if they can't get initial access.

"I don't think any regular Web site could have planned for this," McCormick said. Concerned about another crash in the glare of world media, McCormick said, her head programmer "set up a computer next to his bed [Wednesday] night. He kept waking up and checking" if the site was still up. It was.

Staffers expected a breather after it was announced that the decision wouldn't be released until today at the earliest. Instead, traffic got even heavier. "Our log file has gotten so big, we might have to split it in half to analyze it."

Lawyers Weekly hopes the mirror sites, including one in England at <http://louisie.virgin.net/>, will siphon off much of the heavy traffic from the U.K. The staff also has turned off some graphics at the site to speed page downloading.

Meanwhile, all the attention has been a boon to Lawyers Weekly's Web advertisers, who have gotten "Super Bowl exposure for Monday Night Football prices," McCormick said. And, the hoopla hasn't hurt the Web sales force, she said. "We had a few [prospects] on the fence saying, 'OK, we want in!'" □

& Dow Jones Interactive techies hit the road to sound out users. Page 45



Lawyers Weekly's Erin Moran McCormick: "It's just been fabulous and madness"



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Oracle CEO: NCs are the future

Oracle Corp. is turning its guns on Microsoft Corp. The weapons of choice: network computers and the Oracle8 database management system, which Oracle claims is now robust enough to hold all corporate data. Computerworld Editor Paul Gillin interviewed Oracle Chairman Larry Ellison last week at Ellison's Atherton, Calif., home.

CW: Are there any mountains left to climb in database?

ELLISON: Oracle's major challenge right now is the NT file system. We believe it is cheaper to put everything in the database [rather] than dumping it on your hard disk.

Here's a difference between Oracle and Microsoft. We believe what is precious is your data. Let organizations store all their data in a coherent way, whether it's PowerPoint presentations or transactional data. With Microsoft, all the data goes into the NT file system. The company that will win will be the one that offers the most economical data management.

CW: Microsoft has made some gains with SQL Server. Does that keep you up at night?

ELLISON: Microsoft keeps me up at night but not with SQL Server. They can pick off some stuff at the low end. They've got a fabulous brand, and they're practically giving stuff away.

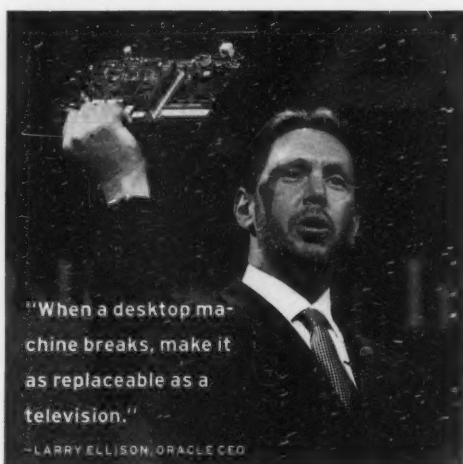
CW: Your database business grew in the single digits in the most recent quarter. Is that market slowing down?

ELLISON: It's a tough comparison. The previous year's growth was huge. I know what our growth forecast is this quarter, and it's very high.

CW: With the demise of the Sedona object tools, could you clarify the Oracle tools strategy, particularly as it relates to Java?

ELLISON: It's very simple. We have our main set of tools — Developer/2000 and Designer/2000 — that we have moved off the desktop and onto the applications server. This is the single most important thing that's new about our network computing architecture: There are tools that let you build Web-like applications where the application runs on the server. All the applications built over the last decade can be redeployed onto an applications server without any reprogramming.

As far as Java, Oracle In-



Forms and Designer and Discoverer all have Java front ends. That works today. With Oracle 8.1, you will have Java stored procedures. We have a project called Aurora that is building this big, scalable, multiuser

heavyweight Java for writing stored procedures.

CW: How likely are you to move your applications entirely to an applications server architecture?

Lotus eases CC:Mail migration anxiety

By Barb Cole-Gomolski

COMPANIES THAT felt pressure to move off Lotus Development Corp.'s CC:Mail because the company announced an end to upgrades are about to get a helping hand in their efforts to migrate to Notes.

Lotus officials last week said the company is overhauling its migration software, making the tools easier to use and updating them to support the most recent version of CC:Mail.

Also, discounts for CC:Mail users who move to Notes are

pressure to move off CC:Mail, particularly as their electronic-mail usage rises.

CC:Mail, a file sharing system, isn't as scalable or reliable as client/server systems such as Notes and Microsoft Corp.'s Exchange. Client/server mail has lower administrative costs, too.

HURDLES TO CLEAR

"The [migration] hurdle is currently too high," said one manager of messaging at a large pharmaceutical company that runs CC:Mail. He said Lotus has failed to deliver solid migration

ELLISON: It's very likely that Oracle will not even offer its applications in client/server mode sometime next year. We're so convinced that having the application and data on the server is better, even if you've got a PC. We believe there will be almost no demand for client/server as soon as this comes out.

We've already told our application customers that we'll be [doing this], and if there is demand, we'll do client/server. But we don't think there will be.

CW: Is it a reasonable goal for you to overtake SAP AG in applications in the next three to five years?

ELLISON: Absolutely. I can make a case that our most important competitor is SAP, not Microsoft.

The [IT infrastructure] business can't continue as long as it's so labor-intensive. It takes three \$150,000-a-year people to run [a \$20,000 server].

Infrastructure is going to have to look more like a utility, and the bulk of the dollars will

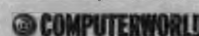
be spent in applications systems and services.

CW: What are the implications of that on IS organizations?

ELLISON: They can redeploy resources to build applications. We don't want them to have to worry about making sure that all of the right font files are in all PCs. When a desktop machine breaks, make it as replaceable as a television.

CW: But the network computer doesn't seem to be resonating much with corporate IS at this point.

ELLISON: Version 1 [network computers] haven't been everything we want them to be. The new versions coming out [from Oracle's Network Computer, Inc. subsidiary] will run all of the Oracle applications, will have 200-MHz processors, and will have broad support from Intel and others. □



The complete version of this interview and audio clips will be on our site (www.computerworld.com) Tuesday.

Meta Group, Inc. in Stamford, Conn. "These sites are getting around to migrating, but the improvements Lotus has made to CC:Mail have allowed them to buy themselves some time."

That is a mixed blessing for Lotus because it has also given sites the opportunity to evaluate other client/server mail platforms, users said.

For example, Joseph E. Seagram & Sons, Inc. in New York is eyeing either Notes or Exchange as a replacement for its 15,000 CC:Mail seats. At this point, Exchange is favored because one of Seagram's subsidiaries is migrating to the Microsoft E-mail system, according to Kevin Coleman, an implementation specialist at the company.

Even with the improved Lotus migration tools, there is no guarantee that CC:Mail users will switch over to Notes quickly, users said. "You can't force people who are happy with what they have to change," said Paul Badowski, a senior network specialist at Belcan Engineering Group, Inc. in Cincinnati, which has about 1,000 CC:Mail seats.

"If your priority is E-mail, why switch [from CC:Mail to Notes]?" asked Mark Levitt, an analyst at International Data Corp. in Framingham, Mass. □

CC:MAIL WISH LIST

Customers want	Lotus plans
→ Financial incentives to migrate to Notes	→ To offer them down the road
→ Better migration/coexistence tools	→ To make current tools more usable and to update them to support the most recent version of CC:Mail

planned, according to Larry Jones, director of product marketing at Lotus. Jones declined to provide specifics.

The news was welcomed by users who are feeling increasing

tools that let sites move E-mail, discussions and directory information smoothly and allow Notes and CC:Mail systems to coexist.

Even Jones conceded that

"these migration tools have been difficult to use." But he said both CC:Mail Migration Tool, which moves E-mail and directory data to Notes, and the CC:Mail Message Transfer Agent, which allows the two mail systems to coexist, are getting an overhaul.

The upgraded CC:Mail migration tool, which will be available by year's end, will also support the most recent versions of CC:Mail. Previously, it worked only with earlier versions.

Many CC:Mail shops have migration on their minds because Lotus has no plans to deliver major upgrades for the mail system. Rather, the company will roll out a few maintenance releases per year, Jones said. There are currently 13 million CC:Mail users and an equal number of Notes users, according to Lotus.

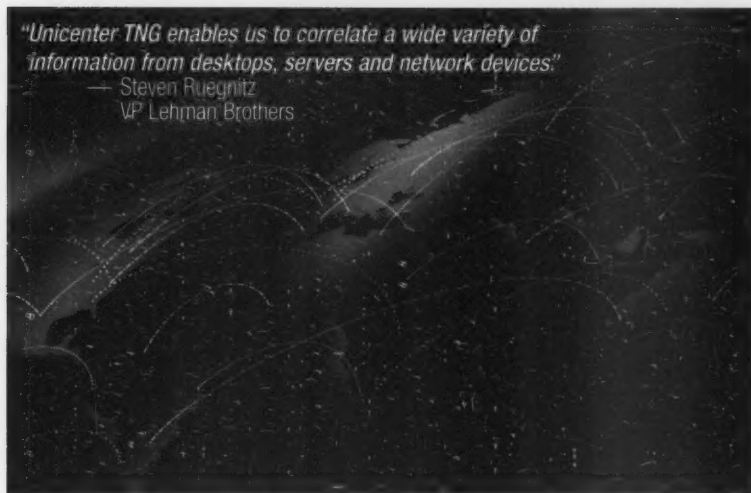
Lotus' strategy has been to add key features to CC:Mail — such as support for World Wide Web browser clients and a more reliable database — and encourage users to move to Notes when they are ready.

As a result, a lot of CC:Mail sites have no migration strategy, said Matt Cain, an analyst at

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FRANKLY SPEAKING

The Java slipstream

FRANK HAYES

HOW DID LOTUS DO IT? Just six months ago, Lotus was far back in the pack in the race to get Java office applications into users' hands. Out in front was Corel Corp., whose Corel Office for Java—a knockoff of the WordPerfect office suite—was already in beta.

Right behind Corel were longtime Unix application vendor Applix, Inc., with a spreadsheet called Espresso, and Boulder, Colo.-based consultancy Cooper & Peters, Inc., whose collection of Java office software was drawing attention from Sun and Microsoft.

Lotus, with just a few weak demonstrations of something code-named Kona on its Web site, was barely in the hunt.

That was last spring.

Last Monday, when Lotus announced ESuite—the commercial version of Kona—it was the front-runner among

Java office suites.

Corel had bailed out. Cooper & Peters sold itself to Microsoft and vanished.

Applix had changed its approach. It was almost as if Lotus just slipped into the top spot by default.

But Lotus didn't just slip in. It slipstreamed in.

Or consider what happened to Borland International, Inc.



Second-wave IT adopters can get more benefit at a lower cost—and earlier.

Borland two years ago was anointed king of Java development tools by no less than Sun itself. Remember Latte, the ultimate Java development tool set? But within a year, Symantec had beaten Borland to the punch with its Cafe development tools. Today, Symantec all but owns the Java tools market.

Or what about Oracle? First and noisiest of the network computer vendors, Oracle was supposed to lead the network computer charge. But today, a slew of other vendors are selling more network computers than the database giant.

CUTTING EDGE

How did they do it? The same way you can catch up if you're behind the curve in developing your own Java intranets or applications: slipstreaming.

You know how it works at the Indy 500 or the Tour de France: In a physical race, the front-runner pulls a vortex of air behind him. The second-place racer can use that suction to go just as fast as the leader without working as hard, then as a slingshot to rocket ahead.

Turning new technology into new systems can work the same way.

Cutting-edge developers do the hardest work, discovering the problems and pitfalls, but they also get first

crack at the benefits.

Those who come later have an easier time of it—at least if they learn from their predecessors' mistakes. They don't get the benefits as early.

But a few technologies are turning that logic on its head. Second-wave adopters actually are getting more benefit at lower

cost—and getting it before the first wave does. That's slipstreaming.

It happens when early adopters have to work so hard and tools and experience improve so quickly that the second wave actually can pass the first.

It's true of SAP's R/3, whose recent implementors finished the job in months, while early adopters still struggled with years-long schedules.

It's true of large, complex Web sites built with older tools or by hand—and quickly passed by new, automated tools.

And it's true of Java. But it won't last forever.

Yes, Java is still hard. First- and even second-generation Java projects still are struggling with the pain of early adoption.

But it's quickly getting easier. Tools are better, developers are more experienced, and products are more polished.

Right now is the sweet spot in the slipstream. Start studying up on Java—evaluate the tools, collect your requirements and steal every good idea you can from those who have gone before.

Then get to work. It's late, but maybe—just maybe—you can still rocket ahead of your competition. □

Hayes is Computerworld's staff columnist. His Internet address is frank.hayes@cw.com.

SHORTS

Outsourcing deal turning sour

A \$550 million outsourcing deal between Sears PLC in the U.K. and Andersen Consulting seems headed for the rocks. The reason: An information systems centralization effort started by former CEO Liam Strong was reversed by the board following Strong's departure in April, according to the IDG News Service. Andersen confirmed that it is re-examining its arrangement with Sears—no relation to Sears, Roebuck and Co. in the U.S.—as a result of the moves.

Nova in \$542M outsource deal

Nova Gas Transmission Ltd., one of the largest natural gas suppliers in North America, has signed a seven-year, \$542 million outsourcing agreement with DMR Consulting Group, Inc. in Edison, N.J., and IBM. DMR will provide Calgary, Alberta-based Nova services with application development, technology enhancements, systems maintenance and support. IBM will provide desktop services and operations support.

Nortel bids for BNI

Nortel, Inc. has offered \$418.4 million in shares and cash for Broadband Networks, Inc. (BNI). The deal requires the unanimous approval of BNI's shareholders. By purchasing BNI, Nortel would be able to incorporate the Winnipeg, Manitoba, company's wireless broadband access technology into its own product lineup.

Netscape buys all of Actra

About 18 months after announcing a joint Internet commerce venture with General Electric Information Services (GEIS), Netscape Communications Corp. is buying out its partner. The Mountain View, Calif., software

maker said it will acquire Actra for \$56.1 million in stock. Officials said the deal is intended to let each company concentrate on its strengths: Netscape on software for the enterprise, and GEIS on services.

Year 2000 bug threatens SSA

The Social Security Administration, considered a leader among federal agencies in handling year 2000 bugs, faces a lot more work on the matter, according to a government report. Private contractors who work for the agency found at least 33 million lines of software code that need to be assessed. The General Accounting Office report said the magnitude of the review could force "major disruptions" in the agency's ability to process disability claims for millions of Americans.

Cisco rolls on; revenue jumps

Cisco Systems, Inc. reported a 30% jump in fiscal fourth-quarter revenue, from \$1.43 billion in the same period last year to \$1.86 billion this year. Profit rose from \$180.9 million to \$336.5 million.

Parametric makes acquisition

Hot software maker Parametric Technology Corp. said it plans to buy struggling Computervision Corp. in a stock swap valued at \$260 million. The move would give Parametric a chance to expand into the aerospace and automotive markets, where Computervision has some high-profile customers.

Java camp seeks common APIs

IBM, Lotus Development Corp., Oracle Corp. and Sun Microsystems, Inc. are working on a set of common application programming interfaces (API) for desktop Java

applications. Company officials said they hoped the APIs would standardize the development of Java-based desktop applications. A spokesman for Sun's JavaSoft division said the APIs should help developers by clearing up "fundamental differences" among vendors' technologies.

Extreme switch due

Extreme Networks, Inc. in Cupertino, Calif., this week will announce a box called the Virtual Chassis that enables users to connect up to eight of its Summit Fast Ethernet/Gigabit Ethernet LAN switches located throughout a building. It will cost \$8,995 and will ship in the first quarter next year.

SHORT TAKES The Justice Department has requested a sheaf of documents from Apple Computer, Inc., which the company said will delay its acquisition of Power Computing Corp.'s Macintosh operations. ... More than a year after Oracle began beta-testing a new version of its Developer/2000 development tool, the product is finally due to be released next week. ... Santa Clara, Calif.-based McAfee Associates, Inc. this week will announce new virus-scanning software for electronic-mail messages coming through Microsoft Corp. Exchange clients and servers. ... The World Wide Web Consortium (www.w3.org) has floated two technical proposals to improve Web site design and content, including document layout and video streams that use less bandwidth. ... Rockwell International Corp.'s net earnings fell 11% to \$644 million during fiscal 1997, reflecting costs in launching its new K56flex modem and charges related to research and the spin-off of its automotive business. ... About 2,000 beta users of Quicken 98 found themselves shut out of the online banking server after the product went live Oct. 22. Intuit, Inc. has posted a fix at www.intuit.com.

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Huge enterprise apps pose management risk

By Randy Weston
Orlando, Fla.

THE GOOD NEWS about enterprise resource planning (ERP) systems is that vendors such as SAP AG are giving users exactly what they asked for: an all-encom-

passing software package that runs every aspect of the business.

But that's also the bad news. Today's soup-to-nuts ERP projects are getting longer, more complex and more expensive. They are also making users highly dependent on a single software vendor.

"Be careful what you wish for," said Jim Shepherd, an analyst at Advanced Manufacturing Research, Inc. (AMR), a consultancy in Boston. "The problem is these systems are getting unmanageable. They have gotten enormous from a functional standpoint."

Shepherd made his comments last week to about 300 chief information officers and other executives from manufacturing companies gathered here at AMR's executive conference.

"ERP systems have never been easy to implement or fast to implement. But the broader they get, the harder they are going to get to implement," Shepherd said. Broader ERP projects are more difficult because they involve more business functions and more employees to be trained, he said.

Companies have invested so much in systems such as R/3 that the software has taken over the defining role that hardware used to have.

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Tips for handling the expansion of ERP systems:

- Focus on building an enterprise backbone that maps to business processes
- Resolve the fit between an ERP system and critical components
- Focus on the role of enabling technologies and infrastructure
- Plan for the unexpected
- Never lose sight of the business case

"We used to be an IBM shop. Now we are an SAP shop," said David Edelstein, vice president of information management at Bristol-Myers Squibb Co. in Princeton, N.J.

Bristol-Myers is in the middle of a worldwide rollout of SAP's R/3 system — the pipeline through which all other data will flow. That means it has to link R/3 to other systems such as supply-and-demand-chain planning software from I2 Technologies, Inc. in Irving, Texas, and Manugistics, Inc. in Rockville, Md.

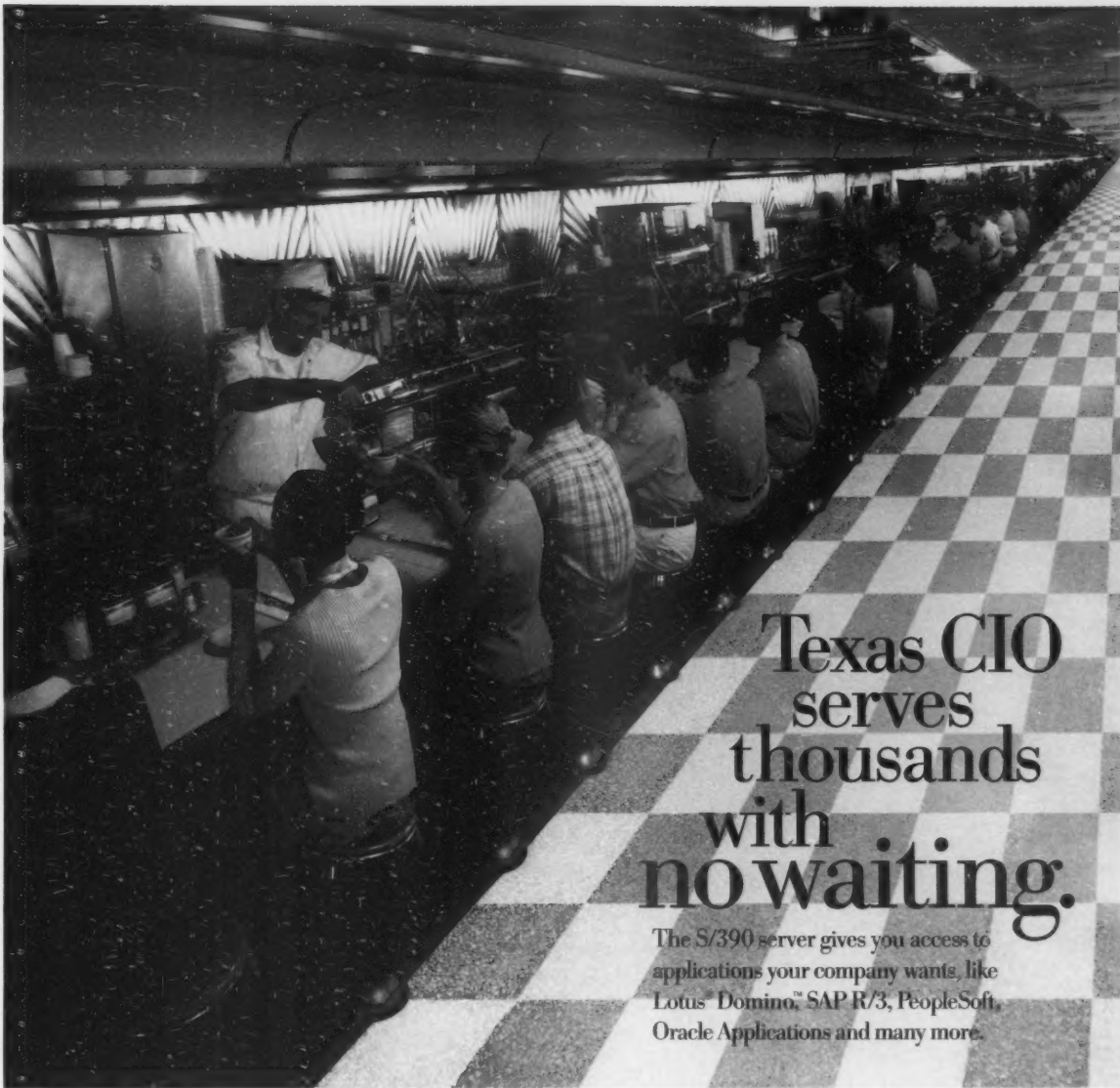
Edelstein brushed aside warnings of vendor dependency and implementation difficulties, because the efficiency of the integrated system is expected to save Bristol-Myers \$150 million per year.

The firm has assembled about 200 people from systems and business areas to handle implementation and to manage the system once it is in place. Shepherd said that is a smart way to keep ever-growing ERP systems under control.

Other users agreed that the risks are countered by the benefits of centralized management of business processes.

General Electric Co. is standardizing most of its business units on Oracle Corp. applications. Roger Keller, supply-chain manager at GE's Industrial Control Systems division in Atlanta, said he is willing to put as much on Oracle's back as possible. And where Oracle can't fill the need, he said he expects the vendor to provide easy links to third-party products. □

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MCI preps 'private' network

► Users can run virtual WANs over the Internet

By Bob Wallace

MCI COMMUNICATIONS CORP. is quietly preparing an international virtual private network (VPN) service that will let companies run wide-area networks over the Internet.

The as-yet unnamed service is expected to be announced next month at Fall Internet World '97 in New York. It will be generally available in the first quarter of next year, just a few months after AT&T Corp.'s global VPN offering is due.

VPNs are gaining popularity as a less expensive, Internet-based alternative to wide-area data services such as frame relay, which are carried on a long-distance telecommunications company's private network. Users dial in to VPNs and, after authentication, are able to transmit encrypted traffic through "tunnels" across the Internet.

"We're looking at a VPN that would let our 500-person field sales force access information at headquarters and communicate with each other," said Peggy Morgan, manager of MIS and finances at the U.S. Chamber of Commerce in Washington. "We

think that because these sites are so scattered, it'd be cheaper and easier to go with a VPN than our own network."

Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy, said VPNs let companies close ranks with suppliers, business partners and remote sites around the world. VPNs also can be used to support growing legions of remote workers.



GMAC's Niraj Patel: "We're very interested in VPNs, but we have concerns about their security"

But one user is cautious. "We're very interested in VPNs, but we have concerns about their security," said Niraj Patel, chief technology officer at GMAC Commercial Mortgage Corp. in Horsham, Pa. "We would be very scared about

sending our most mission-critical information over the Internet."

UUnet Technologies, Inc., Concentric Networks Corp., GTE Corp. and others already offer VPN services, and more are expected to follow.

Like most VPN service providers, MCI plans to offer dial and dedicated links. Dedicated links are recommended for users with heavy data communications needs.

MCI is beta-testing Microsoft Corp.'s Connection Point Service, which is supposed to make the VPN easier to navigate than rival services, said Glen Tindal, director of internal data networking at MCI.

The software would enable VPN users to find the number of the person or resource they want to reach using a directory, Tindal said. He wouldn't say when a final decision on the software would be made.

MCI plans to offer managed firewall service options for users who don't want to do all the care and feeding of the VPN security device.

Although some Internet service providers charge a flat rate for the number of connections, MCI is also considering usage-based pricing, Tindal said. □

TOOLS OF THE TRADE

Tools in AFC's intranet to help new franchisees get started

- **Project management tool:** Facilitates creation of a business plan
- **Development road map:** Explains how to open a franchise*
- **News feeds and urgent messages:** Uses push technology from headquarters
- **Sales reports:** Uses a special "data bridge" system
- **Online manual:** Contains procedures and policies

*Includes everything from how to build a franchise to how to schedule its grand opening

Restaurant franchiser puts intranet on menu

By Bob Wallace

LITTLE-KNOWN restaurant franchiser AFC Enterprises, Inc. in Atlanta this week powered up an intranet that uses advanced networking technology to help it take a bite out of the big chains.

AFC, which owns Popeye's Chicken, Church's Chicken and Chesapeake Bagel Bakery, has built an intranet designed to give new franchisees the tools they need to get started. And it will provide ongoing support to hundreds of current eateries.

"AFC's mission is to become the franchiser of choice," said Bill Clapes, AFC's director of franchise systems and multimedia technology. "When an entrepreneur is looking to become a franchisee, we want him to come to us. We want our main selling point to be world-class support."

AFC uses a virtual private network (VPN) to link franchisees to its intranet. A VPN is a private channel carved out of a public network such as the Internet. VPNs typically are less expensive to maintain than private company networks, but they also can be less secure.

Using PCs supplied by AFC, franchisees can access a project management tool that helps them create a business plan. And they can access a "development road map," which shows them how to open a restaurant.

Down the road, AFC will use "push" technology to distribute news feeds, urgent messages and sales reports, Clapes added.

AFC will pay for the hardware and software and cover the costs of running the intranet, except for the individual restaurant's Internet access charges. Clapes

said the approach is intended to "improve support, not cut costs."

"This is a valuable tool that fills a void in the restaurant business," said Ralph Reiland, a former chief information officer at PepsiCo, Inc. and associate professor of economics at Robert Morris College in Pittsburgh. "It's an ideal way to reach the young people that run restaurants, as they're becoming increasingly computer literate."

He said other chains "are just beginning to dabble in networking projects like AFC's." Typically, chains talk to their franchisees once or twice a day using dial-up connections.

"That sounds interesting, although what we do is a little bit more traditional," said Alan Labatte, vice president of information systems at Uno Restaurants, Inc. in Boston. "We're using a dial-up polling package that lets us send pricing information, payroll and human resources information, while pulling sales data from the stores."

SECURITY CONCERNS

Clapes said the top concern among franchisees was security, because the sites will be sending sales information and other sensitive data over the network. For its VPN, AFC chose client software from VPNet Technologies, Inc. in San Jose, Calif.

AFC also plans to build a series of bulletin board systems that will foster communications among franchisees. "We've heard loud and clear that these people learn more from each other than anyone else when it comes to running their businesses," Clapes said. □

Users get desktop-like analysis over Web

By Craig Stedman

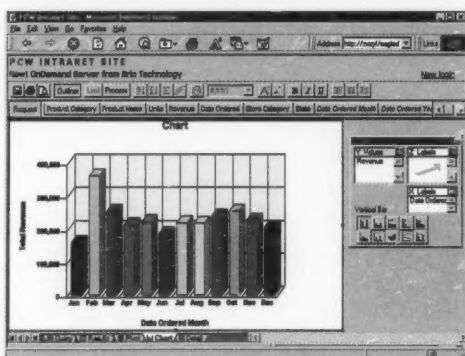
DESKTOP QUERY TOOLS rewritten for the World Wide Web mostly limit business analysts to reading canned reports. But users' dreams of doing full-fledged data analysis over the Web are starting to come true.

Brio Technology, Inc. this week plans to announce a new server-based query tool that gives users linked to corporate databases via the Web the same ad hoc analysis features that come with its desktop software.

Several Brio beta testers said their end users are itching to get full querying support in a Web browser.

"Our users don't necessarily want to wait on us to develop a report for them or to dictate how the reports look," said Jim Scott, financial applications manager at Comcast Cable Communications, Inc. in Philadelphia.

Comcast has about 50 managers and financial analysts who use a Web report-viewing tool



Brio's tool will let browser users ask queries on the fly

that Brio shipped last year. But that makes it hard for users to get fresh data or answers to questions that aren't covered in the canned reports.

Roland Ebright, an Alpharetta, Ga., consultant who is building a Brio-based application for a regional telephone company, said using the Web should cut

in half the number of technical workers needed to support the query tools.

The new release of Brio's Java-based Brio Enterprise Server software and browser client plug-in is due to ship this month, with prices starting at \$31,495 on Windows NT servers. □

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Finalist

AT&T's Ponder makes leap from CIO to CEO

By Matt Hamblen

AT&T CORP. CIO Ron Ponder will soon become a CEO.

For Ponder, it is the fulfillment of a longtime dream to be top dog.

"I've always wanted to run my own company," said Ponder, 54, in an interview. Starting Dec. 1, he will be president and CEO of Beechwood Data Systems, Inc. in Clark, N.J., a 10-year-old software and services provider to the telecom-

munications industry.

In 1993, Ponder made headlines for taking a high-profile position as AT&T's first chief information officer. Ponder now will go from managing the \$52 billion telecommunications giant's 12 divisional CIOs and 40,000 employees to managing a company that has just 400 employees.

At Beechwood, he will fret with board members over whether to merge with other companies or go public. And, he said, he will spend a fair amount of time worrying about how to keep AT&T as a Beechwood customer.

"This is one of the most fascinating times, with all the mergers and innovations," Ponder said. "The Internet is going to gently push us all into a different and better world over time in telecom. I can't think of a place that's more fun."

It could be a tough transition, observers said. Although CIOs can successfully become CEOs, Ponder will need to adjust to a much smaller organization than any he has worked with, said Frank Dzubeck, an analyst at Communications Network Architects in Washington. Still, analysts said Beechwood will be well-served with Ponder's background.

ILLUSTRIOUS PAST

Ponder was known as a brilliant CIO at Sprint Corp. in Kansas City, Mo., and at Federal Express Corp. in Memphis before coming to AT&T where it has been hard to assess his impact, several analysts said.

That might be because Ponder's efforts to implement change and his ability to shine as an innovator were stymied by AT&T's large and entrenched bureaucracy, Dzubeck said. He said 30-year employees may not have been open to new ideas from Ponder.

His departure is amicable, but Ponder's tenure unfortunately may be best remembered for his disagreements with former AT&T President John R. Walter, who wanted to outsource information technology over Ponder's opposition, observers said.

In May, Walter removed Ponder from overhauling AT&T's billing systems and put him in charge of creating a plan for integrating AT&T's network with its partners' systems [CW, May 12]. Many viewed it as a demotion.

Then in July, when many considered a sweet twist of fate, Walter resigned, with one board member publicly ques-

tioning his ability to handle the job.

Ponder wouldn't discuss Walter or much of what happened during his years at AT&T, but he said good progress was made on integrating the AT&T network. And Ponder said he was proud to be able to "give the division CIOs a voice with top management."

Whatever tension may have existed several months ago, AT&T President John Ziegler circulated an internal memo last week praising Ponder as a "good friend" with an "engaging personality and ... deep knowledge of information systems." An AT&T spokeswoman said

Ponder speaks

CW: What does it take to be a good CIO?

PONDER: Understanding what the customer wants from the company. CIOs must understand the total end-to-end process. But we tend to focus on what's in front of us, and it takes more to look horizontally and look at all functions.

CW: What attracted you to a CEO post?

PONDER: I have always wanted to run my own company. ... I like to lead, and I feel I'm a good communicator. ... So, while I have a technical background, you'll find from those who know me that I spend a lot of time on the human side of the organization. The only real asset you have is people's brains and abilities and experience. It's going to be fun to be involved in all aspects of an organization [as CEO].

CW: How do you stay on top of technological change?

PONDER: It's difficult. You have to read a lot, and you have to stay close to good people in all areas, and you have to arrange to have them keep you up to date. You have to learn to tap experts, and you need to attend selective seminars.

— Matt Hamblen



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AT&T CIO Ron Ponder will become CEO of Beechwood Data Systems Dec. 1

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Lotus hopes to redraw office market with ESuite

CONTINUED FROM PAGE 1

way to cut the cost of office productivity tools.

The goal of ESuite is to "make computing easier, less expensive and more closely tied to an organization's business objectives," said Lotus President Jeff Papows at last Monday's unveiling.

Lotus is the first major vendor to introduce a suite that should theoretically run anywhere using Java virtual machines or within World Wide Web browsers. In bringing ESuite to market, Lotus hopes to redraw the office productivity market with a minimalist philosophy to reduce the total cost of ownership.

Office suites, which have been on a features binge for years, have grown to more than 100M bytes. With its applets weighing less than 800K and 500K bytes and the ability to upgrade every seat in a company from a central location, Lotus hopes customers will jump off the fast-moving technology treadmill and into its arms.

INDUSTRY WRAY

But observers were skeptical about whether Lotus could persuade companies to convert their dumb-terminal users to

"Our clients have been clamoring for this kind of functionality."

- Mark Watson, Binary Tree

network computers and ESuite, and whether ESuite had enough compatibility to coexist in the Microsoft Corp. world.

Code-named Kona, ESuite consists of four major components: the Workplace user interface; nine Java applets, including a word processor, spreadsheet, electronic-mail client, calendar and scheduler; a browser; and database access tools.

The user interface and nine applets will be available in January and will cost \$49 per seat when purchased in volume.

A DevPack will be available in March for \$1,495 per processor.

Lotus' announcement included apparent broad support from industry leaders, including Sun Microsystems, Inc., Oracle

Corp., Netscape Communications Corp., Novell, Inc., America Online, Inc. and Lotus' parent company, IBM.

The companies announced various levels of support and bundling for ESuite. Even Intel Corp. was there to say it would try to optimize ESuite for Intel processors. Perhaps more significant, the companies also agreed to work on a set of specifications for the network computer interface, called Web 98.

SOME QUESTIONS

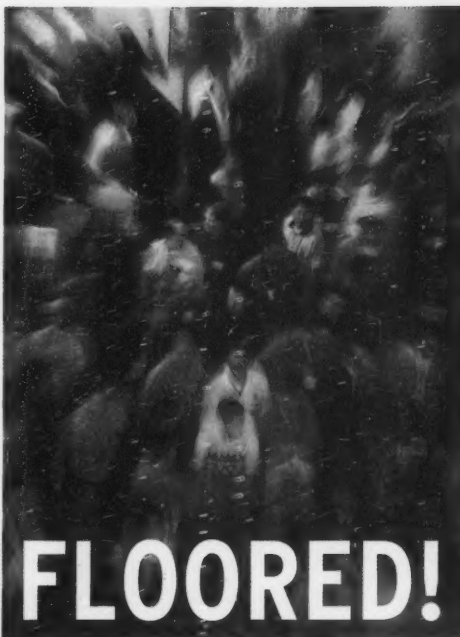
But some industry analysts questioned how strong the alliance was and how many users will actually adopt ESuite in the short term. Judith Hurwitz, president of Hurwitz Group, Inc. in Framingham, Mass., said she hadn't seen enough features that would compel companies to use it. "It's a starting point [for a Java suite], but they've got a long way to go," she said.

"It's yet another user interface," said analyst Michael Sullivan-Trainor at International Data Corp. in Framingham. He said PC users would need to relearn all their office applications. And users of 3270 terminals typically don't have office productivity applications such as those included in ESuite. Generally, those users need an application much more specific to their industry, he said.

Lotus officials said they would work on compatibility. For now, document exchange can be accomplished through the native Hypertext Markup Language support in most office suites. Word or WordPro files also can be accessed through a viewer that will be in ESuite.

Mark Watson, a vice president at Binary Tree, Inc. in New York, said the applets will let some companies bridge compatibility problems they have now. Watson, whose company develops Notes and Domino applications, said one customer has problems sharing Microsoft Office 97 documents with another company that uses Lotus SmartSuite 97 through Notes. He said the two have expressed interest in instead using the ESuite applets through a Web browser to share information.

"Our clients have been clamoring for this kind of functionality," Watson said. □



► Windows, Web ware on tap for Comdex/Fall

By Computerworld staff

COMDEX/FALL '97 promises a five-day flurry of new hardware, Windows products, network computing tools and World Wide Web-enabled commerce applications.

An estimated 200,000 people are expected to flock to Las Vegas next week, cramming halls in which 2,100 companies will exhibit more than 10,000 new products.

On the Web front, 650 companies are taking part in an Internet showcase, rolling out Web development tools, browsers, commerce applications and security products.

Here is a peek at what is on tap:

■ **Microsoft Corp.** plans to demonstrate its multiuser version of the Windows NT operating system, code-named Hydra. It will let users run Windows applications on the server and push Windows into the space network computer vendors have been pursuing — the traditional terminal market. The company also will announce availability of Exchange 5.5, an upgrade of its messaging and groupware server intended to

boost scalability and offer additional Internet hooks and collaboration features. Version 5.5 should be capable of supporting 1,000 users or more.

■ **Wizzard Software Corp.** in Pittsburgh plans to unveil Voice E-mail, an electronic-mail product with voice recognition. The software will let users navigate through their E-mail by using voice commands and create their E-mail by speaking. The software runs on Windows NT and Windows 95. It costs \$49.95 per user license and is available now.

■ **Dell Computer Corp.** in Round Rock, Texas, plans to show off at least one model of its forthcoming Net PC lineup, dubbed the OptiPlex N. The OptiPlex N is due next month and features Pentium chips with MMX at 166 MHz and up, 512K

bytes of Level 2 cache, and 16M to 256M bytes of system memory.

■ **Actioneer, Inc.** in San Francisco will announce Actioneer for Windows, messaging software that lets users capture, manage and share action items contained in E-mail, voice mail and documents. The software, priced at less than \$100 per

user, runs on Windows 95, Windows NT Server and 3Com Corp.'s PalmPilot.

■ Even plain-vanilla storage is taking a high profile this year with a special Fibre Channel area that will highlight how the interconnection technology can speed storage system performance. IBM will demonstrate its latest disk drives for high-end storage, the Ultrastar 18XP. The 18.2G-byte drive doubles the 9G-byte drives on the market.

■ **3Com** will use the show as a backdrop to unveil a host of products, including 56K bit/sec. offerings and an international X2 PC Card modem approved for use in more than 30 countries. The vendor also will offer attendees a sneak preview of its upcoming LAN + Modem combination cards.

■ Notebook PC vendors will show off speedy new machines armed with Intel Corp.'s new 233-MHz processor with MMX technology. The menu includes souped-up megalaptops from vendors such as IBM, Toshiba America Information Systems, Inc. and NEC Corp. that weigh in at a hefty 8 lbs. and have 14.1-in. color screens, some with DVD-ROM drives and enhanced sound and video.

■ The mininotebook market is heating up with a more powerful 1.8-lb. Toshiba Libretto 70CT. It features a 1.57G-byte hard drive, 6.1-in. active-matrix display and a 120-MHz Pentium processor. It costs \$1,999.



Wizzard's Voice E-mail

■ **AT&T Corp.** is expected to announce its entry into the virtual private network (VPN) market with a service called Worldnet VPN, which lets users carve out virtual networks over the Internet. The service is due by year's end and will serve more than two dozen countries. Pricing wasn't available.

■ On the networking front, Ipswitch, Inc. in Lexington, Mass., plans to further enhance its WhatsUp Gold network management software. The simple and inexpensive tool will add support for monitoring Novell, Inc. NetWare networks and administering Web sites. Version 3.5 will ship next month for \$695. □



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- App. Development Products: ☐ Yes ☐ No
- Networking Products: ☐ Yes ☐ No
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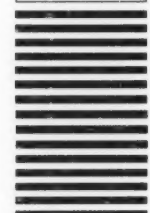
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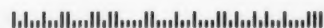
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Web middleware catches on

CONTINUED FROM PAGE 1

application servers between the Web server and the database to boost processing power in the middle tier.

Analysts said they expect the use of that type of middleware to catch on.

"This will be one of the key technology trends in 1998," said Merv Adrian, a senior analyst at Giga Information Group in Cambridge, Mass. "It's the critical enabling step to bring robust, scalable business applications to the Web environment."

Net Contents, Inc., for example, hit a brick wall.

The Palo Alto, Calif., company wanted to expand its popular Virtual Vineyards Web site and move into new areas. But adding new hardware and software on the back end was becoming impossible given the complexity of the business applications.

"We would have had to double our programming staff to write our own middleware. Fortunately, we found we could purchase it," said Ed Videki, director of electronic-commerce systems.

Videki ended up buying Kiva Software Corp.'s Enterprise Server, which lets a company centralize its business logic so changes to an application can be made more quickly.



Net Contents' Ed Videki used Kiva software to expand his Web site

Pacific Bell Internet Services sought out an application server to enable its Web site to handle the increasing number of customers who access billing statements and ordering services. Not only did that allow the company to save money on development costs, but it also reduced hardware expenses.

Andres Gutierrez, the company's vice president of product and systems development, said he figures Pacific Bell avoided at least \$1 million in back-end hardware costs by licensing application servers for about \$400,000.

Without an application server, Pacific Bell would have needed more CPU processing power on the back end to handle the increased number of transactions. An application server, on the other hand, runs on less expensive hardware.

"You can either grow with the hardware or the software, and we decided we'd grow with the application server software," Gutierrez said.

The application server also helped improve reliability, load balancing and fault tolerance, he said.

Having bought an application server for its external site, Hongkong Telecom decided to use one for its intranet as well.

Billing information for the company's wide range of services, such as long dis-

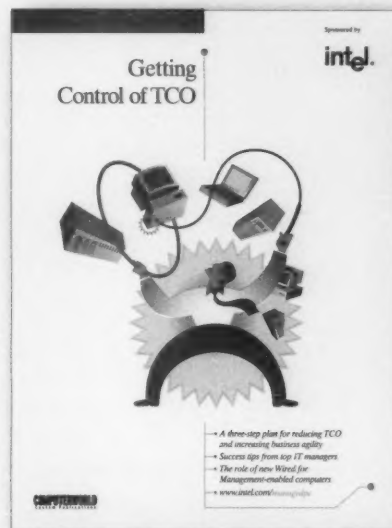
tance and wireless, is stored on different systems. Because of that, a service representative might have to search multiple locations for a customer's bills if that customer purchases more than one service.

"That's where middleware is something that would be very powerful, because the middleware then would actually be going on behalf of the customer service representative to all the different back ends, pulling all [the information] together and presenting it as one display," said Riyaz Moorani, Hongkong Telecom's general manager for the Internet and intranets.

Products in this emerging market in-

clude offerings from major database vendors such as Oracle Corp., Sybase, Inc. and Microsoft Corp., as well as smaller players such as Kiva and NetDynamics, Inc. Other products that can help include high-end application development tools from Forte Software, Inc., transaction processors such as BEA Systems, Inc.'s Tuxedo and object request brokers from Iona Technologies, Inc. and VisiGenic Software, Inc. □

Appearing in the November 17th issue of COMPUTERWORLD



Total cost of ownership (TCO) is in the spotlight — and for good reason. By better managing the computing environment, IT can not only reduce TCO but make the company more versatile, agile and competitive.

A new generation of PCs and servers based on Intel's Wired for Management (WfM) Initiative provides built-in management capabilities that enable remote management and centralized IT control. By coupling these WfM-enhanced computers with a comprehensive management strategy, IT can get control of TCO and turn the computing environment into

even more of a competitive advantage. Specific steps include simplifying the computing environment to reduce complexity without sacrificing power and versatility, and automating management and support functions to lower labor costs.

Look for this supplement in next week's issue and learn how industry leaders are taking steps to control their computing environments and reduce TCO. Find out what they're doing — and how a new generation of computers based on Intel's WfM Initiative can help. You may want to keep it and pass it on to your team.

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Tool eases heavy-duty online publishing

By Barb Cole-Gomolski

ENIGMA INFORMATION Retrieval Systems, Inc. this week will announce an upgrade to its software that helps companies more easily publish and update large corporate documents on an intra-

net, World Wide Web site or CD-ROM.

Although intranets allow companies to publish text-based business documents for mass consumption, Engima's Insight Into Information comes into play for large documents such as technical and operations manuals.

The software automatically converts documents to Hypertext Markup Language, preserving indexes and tables of contents.

Moving such documents online saves money and makes it easier to keep information up to date, users said.

For example, Consolidated Edison Company of New York uses Insight to publish government regulations and operations manuals that the utility is required to keep on hand. During an emergency, such as an oil spill, the utility would turn to those documents to determine what actions to take.

Rich Wickboldt, Consolidated Edison's manager of marine operations, said moving the regulations and manuals online makes them readily available to the company's 17,000 employees.

It is also much easier to update the documents, according to Wickboldt. "We used to do this by hand, with updates being passed out in the form of hard copies to our various locations," he said.

One of Insight's strengths is adding an advanced search capability to the documents that isn't found on most Intranets.

— Ezra Gottheil, Hurwitz Group

The utility also avoids fines because regulators do inspections and assess fines if up-to-date documents aren't on hand, Wickboldt said.

He praised Insight 4.0's new wizards, which guide users through each step of the electronic publishing process. The upgrade from the Waltham, Mass.-based company also has a redesigned user interface that more closely resembles a Windows 95 desktop.

According to Ezra Gottheil, an analyst at Hurwitz Group, Inc. in Framingham, Mass., online publishing makes sense, "since it's the nature of paper documents to change a lot."

One of Insight's strengths is adding an advanced search capability to the documents, which isn't found on most intranets, Gottheil said.

Nick Iaccarino, product leader at aircraft engine maker Pratt & Whitney in East Hartford, Conn., a subsidiary of United Technologies Corp., said Insight's search capabilities help make his company's 4,000-page engine repair manual more useful to customers.

Pratt & Whitney contracts with Engima, which publishes the manual on CD-ROM using Insight.

Insight is available on Windows 95 and Windows NT Server. It costs \$7,500. □

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• Automatically creates a table of contents	• Table of contents may get lost during HTML conversion
• Has built-in search function	• Search features must be added

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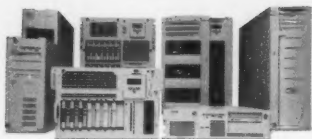
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Cabletron adds remote access to flagship switch

By Bob Wallace

STARTING IN January, Cabletron Systems, Inc.'s data center switch customers won't have to buy stand-alone remote access servers to support far-flung workers.

That's because the Rochester, N.H.,

networking company last week announced the first remote access modules that plug in to the company's flagship MMAC-Plus switches.

"It helps me consolidate remote access [systems] into one managed chassis," said Roland Voyages, director of techni-

cal services at NationsBanc Montgomery Securities, Inc. in New York. "And we can easily scale the system upwards to support more users."

The new modules, which can support corporate telecommuters, remote offices and mobile intranet users, can be man-

aged from Cabletron's Spectrum network management system or by using Telnet.

Integrating remote access in chassis switches saves network administrators from having to set up, configure, administer and manage multiple boxes. Cabletron, which also makes stand-alone remote access servers, said the chassis approach can reduce the total cost of ownership by roughly 10%.

"This is a solid Swiss Army knife approach to networking as the [MMAC-Plus] it can provide switching, shared media and now remote access, all from one chassis," said Craig Johnson, an analyst at Current Analysis, a consulting and research firm in Ashburn, Va.

The downside is that these switches may already be full, or close to full, of LAN switching and shared media modules. That leaves little, if any, room for expansion.

Although integrating remote access into a high-end switch eliminates the need for stand-alone remote access servers, it can create a single point of failure where all is lost in the unlikely event that the switch goes down.

The six new modules are available now. One series supports remote users over Integrated Services Digital Network (ISDN) lines, and a second line supports workers using 56K bit/sec. digital modems that use Rockwell, Inc.'s K56Flex technology.

The modules support wide-area network protocols, including Point-to-Point Protocol (PPP) and multilink PPP. Multilink PPP can combine up to six 64K bit/sec. B channels for greater throughput. Each ISDN line has two B channels.

Authentication schemes supported include Password Authentication Protocol, Challenge-Handshake Authentication Protocol, Remote Authentication Dial-in User Service and Terminal Access Controller Access Control Systems.

The modules also handle routing for IP, Novell, Inc. IPX and Apple Computer, Inc.'s AppleTalk.

For \$16,995, users can buy a module with two ISDN PRI/T-1 or PRI/E-1 ports, and \$23,995 will get them a module with four ISDN PRI/T-1 or PRI/E-1 ports.

Users will be able to buy a module with two ISDN PRI/T-1 ports and 48 56K bit/sec. modems for \$39,995, and a model with two ISDN PRI/E-1 ports and 60 56K bit/sec. modems will cost \$45,745. □

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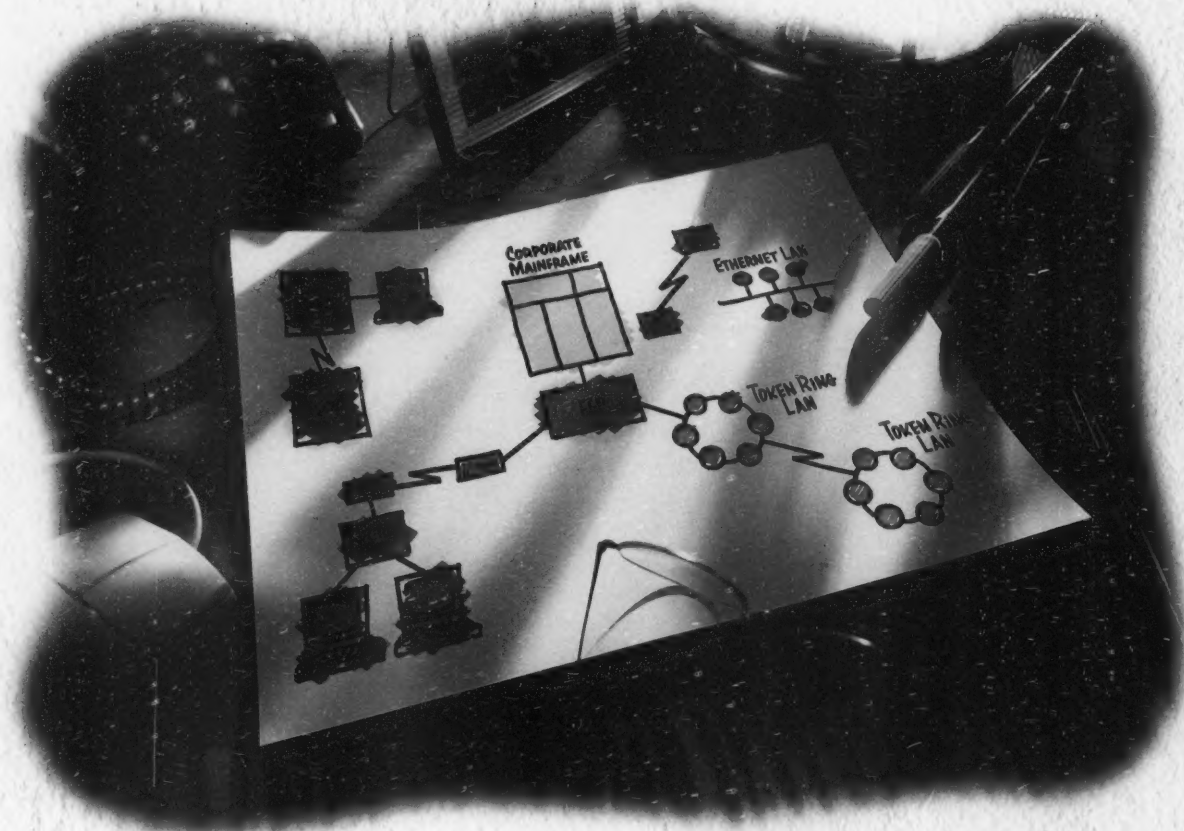
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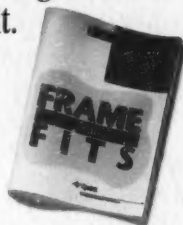
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Europe's dreaming of an E-Christmas

By Sharon Machlis

BACKED BY Hewlett-Packard Co. and Microsoft Corp., a group of European retailers is launching an online Christmas shopping experiment designed to help Old World firms catch up with their U.S. counterparts in cyberspace.

The retailers' new World Wide Web site, www.e-christmas.com, will feature products from about 50 merchants in nine European countries. Items for sale will include Irish crystal, Swiss chocolates and British foods. The site was slated to make its debut today.

"We're keen to be involved in any Internet initiative," said Roger Galligan, chief executive at House of Ireland in Dublin. "It's kind of a learning process."

Project supporters said they are interested in building an Internet infrastructure in the relatively untapped European market and enticing more companies onto the Internet—even

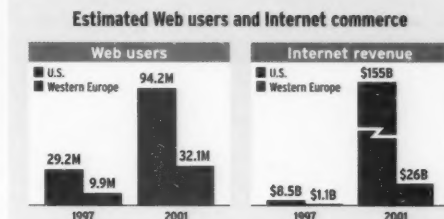
if for now, the bulk of buyers are in the U.S.

"If this gets these technology guys interested, that could have a significant impact on the adoption," said Nicole Vanderbilt, director of the digital commerce group at Jupiter Communications, Inc. in New York.

Europeans say they face electronic-commerce obstacles such as lower consumer Internet usage and a less-developed Web technology and service infrastructure than their U.S. counterparts. They are also less willing to conduct online business until a new generation of secure transaction protocols is implemented.

But there is growing concern among some European businesses that a potentially lucrative new market could be ceded to the U.S. and Asia.

Nobody will predict how much revenue might be generated from the new Web site, although project supporters expect promotional links on sites



Source: International Data Corp., Framingham, Mass.

such as Microsoft's and United Parcel Service of America, Inc.'s will generate a fair amount of traffic. KPMG Peat Marwick LLP plans to issue a report on the project in January.

"With the Internet, it's impossible to predict," Galligan said. "People who are expecting all these visitors to buy may be disappointed."

Galligan said the House of Ireland's Web site (www.houseofireland.com) gets about 5,000 to 6,000 visitors per week—but only 0.2% to 0.3%

of them actually buy goods. Those percentages should rise over the next year to 18 months, he said, as more consumers are exposed to Internet shopping.

"It's an exciting initiative. We thought it was something we should support" because so many organizations in different countries are involved, said Roger Green, joint managing director at EMAP Online in London, which is part of the \$2.52 billion EMAP media company. "We view it as an investment."

EMAP Online offers theater ticket information on the Web; actual orders are placed via E-mail or the telephone. The E-Christmas project will be the first time the company completes automated electronic transactions over the Internet

and also the first time it will be selling "theater ticket vouchers," or gift certificates good for any performance, instead of tickets for a specific day, time and seat.

Retailers aren't being charged to participate on the site, and several of those contacted said it was relatively easy to join the project. The overall Web site, though, is fairly complex; it seeks to pull together pages from 21 different European Internet providers.

The project is open to any Western European retailer that sells goods "with a European flavor" appropriate for a Christmas gift, organizers said.

U.S. companies will post an estimated \$8.5 billion in electronic-commerce activity this year, but Western Europe will garner only \$1.1 billion, according to International Data Corp. in Framingham, Mass.

To encourage cybersales overseas, Microsoft will provide its server software free for the duration of the project. HP is loaning its hardware free to the 21 participating European Internet service providers. It is also providing service and support. UPS has offered special shipping rates to project participants. □

Users tap online catalog projects to save on supply orders. Page 45

Commodities exchanges plan merger

By Thomas Hoffman

A PROPOSED MERGER between two commodities futures exchanges could reap tens of millions of dollars in annual IS cost savings and spark back-office marriages between other exchanges, analysts said.

As announced last week, the plan to combine the Coffee, Sugar & Cocoa Exchange, Inc. (CSCE) with the New York Cotton Exchange (NYCE) could slash combined information systems costs by 30%, said Larry Tabb, an analyst at The Tower Group, a Newton, Mass.-based financial services and technology consultancy. Tabb based his estimate on the cost savings typically yielded by previous mergers in financial services.

Officials at both exchanges declined to comment on the merger or proposed savings, although a joint press release said the transaction "is expected to generate significant cost saving efficiencies from streamlined operations."

A NYCE spokesman said both groups must vote on the propos-



The New York Cotton Exchange is expected to save millions with its merger with the Coffee, Sugar & Cocoa Exchange

al. It wasn't clear when the vote would take place.

About 3,400 employees work at the exchanges, which are located side-by-side at the World Trade Center.

The merger makes sense from a competitive standpoint because all exchanges are under pressure by their members to increase efficiencies and differentiate their products from competitors, Tabb said.

He pointed to the Philadelphia Stock Exchange, which recently developed a set of technology-oriented indexes and options for its member brokers.

One analyst said the merger between the CSCE and the NYCE will entice other exchanges to seek information technology partnerships to gen-

erate similar cost savings.

"Within two years, you'll have a merger of the back offices between the two biggest futures exchanges, the Chicago Board of Trade [CBOT] and the Chicago Mercantile Exchange [CME]" because of cost pressures from member firms, predicted Joseph Rosen, managing director at Enterprise Technology Corp., an IT consultancy in New York.

A spokeswoman for the CBOT said she wasn't aware of any discussions between it and the CME regarding back-office combinations.

But in September, CBOT Chairman Patrick H. Arbor said he would review a proposal sent to him by the CME to unify their respective clearing operations. □

IBM, HP, Seagate vow open tape storage spec

By Tim Ouellette
and Patrick Thibodeau

THREE INDUSTRY GIANTS hope to cut through all the red tape in the midrange tape storage business.

IBM, Hewlett-Packard Co. and Seagate Technology Corp. last week unveiled a joint effort to develop an open tape storage format that will knock down the walls between the numerous proprietary tape formats on the market.

The group hopes to simplify users' buying decisions and the way data is exchanged between different tape storage products. Users currently must wade through competing formats such as digital linear tape (DLT), SDX, Mammoth and Magstar.

But details weren't available, and technical specifics aren't expected until early next year. That has prompted some observers to speculate that the trio may have

another motive—stalling the growth of DLT tape technology. DLT technology is being driven by Quantum Corp. in Milpitas, Calif., the dominant DLT player in the booming midrange tape market.

That growth is being fueled by voracious user demand for open systems servers. As more of these servers enter the data center, demand for tape systems targeted at client/server application support also has risen.

The effort isn't expected to change things in the mainframe tape world, though. Storage Technology Corp. in Louisville, Colo., leads the market and is developing its own tape format for delivery next year.

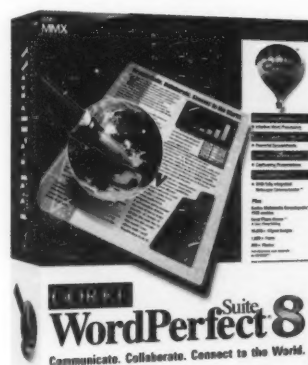
"I think all in all this is really not affecting the high end, but it is in the midrange where there is the opportunity," said Bob Amatrua, an analyst at International Data Corp. in Framingham, Mass. □

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Computer Industry

Senate panel nixes 'net taxes

► Full Senate to vote on five-year ban next year

By Matt Hamblen

ELECTRONIC-COMMERCE advocates were cheered by a key Senate panel's vote last week barring state and local governments from taxing Internet sales for at least five years.

The Internet Tax Freedom Act passed the Senate Commerce, Science and Transportation Committee by a 14-to-5 vote, but it won't be considered by the full Senate until next year.

"I'm glad to hear it," said Carl

Leubsdorf, webmaster at Calvert Group Ltd. in Bethesda, Md. "If states enacted Internet taxes, they would drive all the business overseas."

Leubsdorf is busy creating World Wide Web applications to let Calvert customers and financial advisers access portfolio data at its site (www.calvergroup.com). Eventually, Calvert hopes to sell from the site.

Businesses that delve into Web commerce also have raised the concern that various taxes by

state and local governments would be confusing to track. Some companies certainly would try to evade taxation by locating Web servers in jurisdictions that have lower taxes or in foreign countries. Tracking down the taxes owed could be a huge burden for state and local governments, analysts said.

CHOKING GROWTH

The measure's chief sponsor is Sen. Ron Wyden (D-Ore.), who has the blessing of the Clinton administration and others who believe such taxes could choke

growth of the Internet.

Various groups that represent state and local governments and oppose the measure haven't waged a loud fight. They have voiced concerns that as sales of goods and services go online instead of being sold in traditional ways, sales tax revenue will be depleted.

"Some people worry about the threat [of the act] to Main Street merchants. But if Main Street merchants are competitive, they will survive against E-commerce," said Chris Hill, a spokesman for The Motley Fool,

INTERNET TAX FREEDOM ACT

Pro:

- Prevents confusion from 30,000 state and local taxes
- Gives Internet commerce a chance to grow

Con:

- Hurts traditional merchants that are taxed on their sales
- Undercuts states' rights to tax

a financial information concern (www.fool.com) in Alexandria, Va., that runs a popular site. □

Digital plans Fibre Channel package; market preps for user ramp-up in 1998

By Tim Ouellette

THIS WEEK, DIGITAL Equipment Corp. will join the Fibre Channel fray.

The Maynard, Mass., firm will announce Fibre Channel support in its StorageWorks RAID Array 7000 and Enterprise Storage Array 10000.

Additionally, Digital is planning to offer Fibre Channel switches, hubs and adapters licensed from other companies in order to give users a complete storage networking package.

The great promise of Fibre Channel, an interconnect protocol among computer devices, is that it will let users get around the current cabling length, device and performance limitations imposed by the SCSI standard found in most storage systems today.

"Users want to begin Fibre Channel technology test beds now. But no one is doing mission-critical work on Fibre Channel just yet."

— Brenda Christensen, Fibre Channel Association

"It gives you greater flexibility to expand in the data center. So if it is not too expensive to upgrade, we will go to Fibre Channel for storage performance," said Greg German, assistant director of library systems at OhioLink, a statewide university library network in Columbus.

However, analysts said there are still bottlenecks in adapters

and servers that will limit the performance gains, but not the flexibility, found in Fibre Channel.

That's why, in most cases, users are only contemplating or testing Fibre Channel. They say they are still happy with the performance — though not the distance and connectivity limitations — of Ultra-

SCSI, an improved version of SCSI.

While vendors such as Digital are building Fibre Channel support into their products, the addition of networking products lets users one-stop shop for their storage needs, observers said. The combination of Fibre Channel storage and networking tools allows them to build

pools of storage, separate from the corporate network, on high-speed storage networks [CW, Oct. 20].

Digital is licensing Fibre Channel switch technology from Brocade Communications Systems, Inc. in San Jose, Calif., and hub technology from neighboring Gadzoox Networks, Inc.

Other firms, including Sun Microsystems, Inc., Data General Corp. and MTI Technologies Corp., are also planning or shipping similar packages.

"Users want to begin Fibre

Channel technology test beds now," said Brenda Christensen, a director of the Fibre Channel Association and vice president of marketing at Brocade. "But no one is doing mission-critical work on Fibre Channel just yet."

Digital's arrays will ship with Fibre Channel support early next year. In mid-1998, users of existing arrays will get a Fibre Channel controller that can be plugged in to their box without requiring a "forklift upgrade." □

Microsoft considers \$1B investment in cable group

By Carol Sliva

LEST THERE BE any doubt, Microsoft Corp. is dead serious about cable.

Betting that cable will be the chief entry point to the Internet for home users, the Redmond, Wash., software giant reportedly is considering a \$1 billion investment in US West Media Group's cable television operations, according to a published report.

Microsoft and US West officials declined to comment, saying they don't respond to speculation and rumors.

The deal could give Microsoft a 6% stake in US West's cable business.

That would mark Microsoft's second major investment in a cable company. In June, Micro-

soft invested \$1 billion in Comcast Corp., a deal that gave the software maker an 11.5% share in the Philadelphia-based cable company.

STALLED TALKS

Just weeks ago, Microsoft reportedly was nearing a similar deal with Tele-Communications, Inc. Those talks reportedly stalled over Microsoft's concerns about TCI's 39.5% stake in @Home Networks, a potential Internet access competitor that uses the World Wide Web browser software of rival Netscape Communications Corp.

Microsoft's cable investments mesh with its \$425 million purchase of WebTV Networks, Inc., which delivers Internet access to televisions via set-top boxes. □

FIBRE CHANNEL PLANS

Vendor	Product	Platform supported
Sun Microsystems	Photon	Solaris
Hewlett-Packard	Resells EMC's Symmetrix	HP-UX
Data General	Clarion	Solaris, Windows NT, AIX
MTI Technologies	Gladiator	Solaris, NT, AIX, HP-UX,
Digital Equipment	StorageWorks*	NT, Digital Unix

*Available early 1998

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OPINION

Technodupes It all started with the accursed mapping software,

which was supposed to shave precisely 41 minutes off our eight-hour drive from the Boston area to Gettysburg, Pa., for my niece's wedding last week.

My first clue came when my husband handed me the 17-page printout from the street atlas program. There were tiny maps, mileage charts galore and estimated driving times between exits. "Isn't this amazing?" he said, beaming like a man who'd never even have to consider asking for directions again.

"What's wrong with that 1978 Rand McNally Road Atlas we always use?" I asked. He rolled his eyes and

pointed out how technology was showing us the swiftest route possible. Oh, and that stretch down the Cross Bronx Expressway — the most godforsaken strip of nightmare driving in all five New York boroughs — was

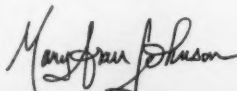
going to be well worth it in time saved.

As we inched our way through sheets of rain that day in the traffic-jammed Bronx, I realized how insidiously technology dupes us into changing our habits and even overlooking common sense.

Consider our widespread enslavement by E-mail as Exhibit No. 1 here. We are so duped by this technology that we have actually changed our work habits to service our overloaded mailboxes. How many of us whine incessantly about how we can't keep up with those 150 messages a day? Yet we try so hard — as if it's going on our permanent record somewhere if we don't read and respond to every one.

Think about how often you've had to slog through a tedious software switch from, say, a Lotus product to a Microsoft one because the marketing dweebs are sending you documents you can no longer read. And how many useless Web sites are languishing out there because someone got technoduped into paying for something they didn't need in the first place?

I would have gladly shared this whole technoduping theory with my husband once we arrived — two hours behind schedule — for that family wedding. But we weren't actually speaking at the time.



Maryfran Johnson, Executive editor
Internet: maryfran_johnson@cw.com



LETTERS

Wells Fargo column overlooked a few PCs

THE COLUMN by Frank Hayes in your Sept. 15 issue ["Show-down at the PC corral"] had a lot of references to the Old West, but unfortunately, Hayes failed to rope in all of the story about the use of PCs in Wells Fargo bank branches.

When Hayes spoke to me and another bank representative, we explained that we do not want to have our front-line branch employees (tellers) spending time working in front of PCs when they need to be spending time in front of the customer providing service. A PC potentially represents a lot of distractions that take away time from customer service. This crucial point was left out of his column.

Contrary to what Hayes wrote, employees don't need a PC to balance a checkbook. And since our tellers do not typically write memos, use spreadsheets or create Power Point presentations, they do not need a PC for those functions either.

We did tell Hayes that most of the PCs that had been in the First Interstate Bank branches before our merger had been taken out. However, we were wrong to leave him with the impression that there are no PCs in the branches now. Our branch-based employees who need PCs have PCs. These include branch managers, Premier banking managers and financial consultants. Employees who don't need them don't have them.

As Hayes accurately pointed out, our tellers, through our new

customized networked terminals, now have more information at their fingertips about our customers than the First Interstate branches ever had. This information means they can assist customers to a greater degree, even though not every employee has a word processor on his desk.

Tom Unger
Vice president
of public relations
Wells Fargo & Co.
San Francisco

Microsoft should realize 'Java-like' isn't true Java

DO NOT BELIEVE that Microsoft is capable of derailing the eventual success of Java.

When I want to write for the Microsoft-owned API, I'll use C++ and get the maximum performance out of the Windows machine. When I want my application to run across as many platforms as possible, I'll choose Java.

If Microsoft's offering is Java-like but doesn't run 100% Java applications, it's simply not Java, and it shouldn't be able to use the name. If Microsoft won't supply true Java virtual machines for its operating systems, I'll get them through Sun, Borland, Symantec, Netscape or any of the other Microsoft competitors eager to supply 100% Java to the Windows masses. Then my applications will run just fine.

David Rawle
Nashville
daver@nashville.net

GIS applications are where the rubber meets the road

YOUR RECENT STORY on "Sharing geographic information systems (GIS) talent with world" [CW, Oct. 6] made me chuckle when I saw the factoid saying, "Harding & Lawson's primary GIS is Arc/Info and ArcView from Environmental Systems Research Institute in Denver." There are quite a few (maybe 50 or 60) firms doing some sort of GIS-related business in Colorado, but ESRI is based in Redlands, Calif.

After years in the GIS marketing business, I say the GIS industry's image problem hasn't changed much at all. Namely, the recognition and acceptance of GIS into the mainstream of IS.

The only stories that make headlines in the mainstream IS publications are stories about applications, yet many GIS folks cling to their own industry by focusing on the engine technology rather than on areas where the rubber meets the road: applications.

Doug Meyer
EDatabank Systems
Highlands Ranch, Colo.

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

TACKLING LEADING ISSUES IN NEW TECHNOLOGIES - VERSION 1.0



We're giving you more control over your clients and servers.

In a world of rapid change, control can mean the difference between a business thriving and merely surviving. The more control a company has over its desktops, the more agility it has to move fast, solve problems creatively, and quickly explore new ways of doing business.

Networked computing environments based on the Intel architecture play a critical role in business agility. However, the very traits that make those environments so powerful—the breadth of hardware and software choices, the growth in desktop capabilities, the explosion of the Internet—also make them more challenging to manage and control.

CONTROL CAN MEAN THE
DIFFERENCE BETWEEN A
BUSINESS THRIVING AND
MERELY SURVIVING.

As the leading supplier of new technologies for the computer industry, Intel is committed to delivering solutions.

To start with, we design manageability right into our processors, baseboards, platforms—even our newest EtherExpress™

PRO/100 network adapters. Our **Pentium® II processor** contains self-test and monitoring circuitry that minimize downtime and provide valuable data to

management software. Along with instrumentation throughout the platform, Pentium II processors help simplify system management.

Through our **Wired for Management (WfM)** initiative, we're working with other PC

Intel Tech BUZZ

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What's the Buzz?

"When deployed in combination with manageable HP Vectra and Net Vectra PCs, and leading desktop management tools, we anticipate that the WIM specification will enable organizations to significantly reduce PC ownership costs."

John Gannon, GM
Commercial Desktop Div.,
Hewlett-Packard Company

"Highly manageable, WIM-enabled PC platforms, combined with system software solutions and good technology management practices, should help customers significantly lower their cost of ownership."

Eric Harslem, Sr VP
Products & Tech. Strategy,
Dell Computer Corporation

"Through our IBM/Intel Advanced Manageability Alliance, we are working to define industry standards, and are already shipping robust WIM-enabled IBM PCs with IBM Wake on LAN technology. This helps our customers to lower the cost of managing their networks."

Anne Gardner, VP
Commercial Desktop
Systems, IBM

"The features, services, and partnerships associated with Compaq's Intelligent Manageability, along with the baseline WIM capabilities, continue to lead the industry in the delivery of standards-based, manageable PCs that reduce the total cost of ownership."

Tim Harris, VP
Desktop PC Division,
Compaq

intel.

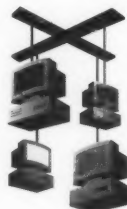
industry leaders to ensure that Intel architecture environments offer not only the most powerful array of business capabilities, but the most manageable. We've spearheaded an industry-wide effort to develop guidelines for a new generation of platforms—designed from the ground up for manageability—to be centrally managed over the network. Now, systems based on those guidelines are coming to market, and they deliver a rich set of capabilities for managing and controlling the computing environment.

With our LANDesk® Management Suite, we offer a comprehensive set of software tools that can automate tasks ranging from software distribution and virus protection to inventory control and asset management. LANDesk family products also provide remote management

features that help IT reduce total cost of ownership (TCO) and increase agility by automating and centralizing management functions.

Manageability rests on more than just products—but products are a good start. By deploying PCs, Net PCs, and servers based on the Pentium II processor and the Wired for Management baseline, companies are better positioned to increase manageability. Add industry-leading management software such as the LANDesk family, and companies are further able to reduce their total cost of ownership, enhance business agility, and thrive in a world of ongoing change.

Manageability is just one element of business agility. Watch for future *Tech Buzz* issues to bring you up-to-date information on other ways to make your business more agile.



Wired for more control.

Wired for Management-capable PCs and Net PCs can help your IT organization increase service levels, reduce support costs, and boost the ability to deploy new capabilities quickly. They do this by enabling down-the-wire remote management that delivers benefits in four key areas:

Asset management. Built-in instrumentation lets systems identify themselves to management software, and provides a wealth of data for inventory control and asset management.

Off-hours and remote maintenance. Remote boot and remote control capabilities can "wake up" a PC and install or upgrade software, without disrupting the user and without a technician's involvement.

Initial system configuration.

A service boot feature allows unattended installation of new systems, including installing the OS and user software.

Remote problem resolution.

Support techs can take over a system remotely, increasing first-call resolution rates and minimizing the need for "house calls." Hardware monitoring and alerting heads off many problems.

The net effect? Network uptime, user satisfaction and business agility go up. Support costs and TCO go down.

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This is just a glimpse of the technologies behind increased manageability. For more detailed information, visit our Web site.

Sales force automation: You're in trouble when . . .

Michael Gentle

Having recently completed a major sales force automation project (for more than 500 reps), I've found it's no cakewalk. I didn't run into all of the following problems, but the experience did point out these not-so-obvious signs of trouble:

1. IS is brought late into a 100% user-driven project. It's hard telling users — who still have the demo-glow on their faces — that the practical issues of enhancements, performance and interfacing to customer data could very well delay the rollout by a year and double their budgets.

2. The business case for the project is focused more on efficiency (automating the paper trail, for instance) than effectiveness (improving one or more aspects of the selling process, for example). Who cares if better "productivity" enables a rep to squeeze in one or two more calls per day if those calls are poorly targeted and unlikely to generate an order? Sales force



Who cares if better "productivity" enables a rep to squeeze in one or two more badly targeted calls per day?

automation investments are very expensive and can be offset only by increased sales, not by reduced costs.

3. Your IS department develops an application in-house. With a slick prototype and a good spiel about competitive advantage, you'll have no problems selling your sales organization on the idea. But you'll live to regret it a year later, when the costs and complexities of distributed computing and support hit you between the eyes. No IS department can build

sales force automation systems more cost-effectively than a vendor with a market of 100 users.

4. You choose a vendor whose largest client has a sales force one-tenth the size of yours. A vendor with no large clients will face enormous difficulties in scaling up to the industrial-scale processes and procedures required to successfully manage projects and roll out several hundred mobile users.

5. You didn't evaluate seriously the vendor's hot-line support. A few hundred reps can easily overwhelm a small support structure, leading to exponential user dissatisfaction in the

initial stages of the project, when you're least able to recover from it. If the vendor's support unit isn't a call center with an automatic call dispatcher and acceptable processes and procedures in place, you'd better have a contingency budget and a backup plan to cope with the inevitable. Remember, hot-line support should be treated with the same importance as critical software features.

6. You chose the latest and greatest laptops on the market, effectively ensuring

that your sales force does the beta-testing. A quirky machine (modem, touchpad, and so forth) can be a show-stopper for a large, often technophobic, sales force, for whom a portable must work, period. Estimate the costs to fix or patch hundreds of faulty machines scattered around the country; that will persuade you to stick with mature products that have been shipping for at least six months.

7. You sign separate contracts with your hardware and software vendors, increasing the chances of finger-pointing when things go wrong. To ensure complete cooperation between the two, get the software vendor to endorse your choice of laptops, and then sign one contract with that vendor for both the hardware and software.

8. The sales director imposes a project deadline that excludes time for a proper pilot test. A pilot test of two or three months is absolutely essential for a sales force automation project. It takes that long to validate product features and to allow the types of problems outlined above to manifest themselves in time for you to take corrective action. □

Gentle is a project manager at a telecommunications company in Paris.

Reno vs. Gates? My bet's on Bill

John Gantz

Janet Reno must be nuts to go after Microsoft. I don't see how she can win. Microsoft's better off with her as an enemy. Sure, Microsoft's claims that Internet Explorer is really part of the operating system are bogus, but that doesn't mean the government should muck about in our software industry.

My opinion comes to me not out of any great love for Microsoft (for example, I hate Windows) or the "Limbaugh Letter" (I am a Massachusetts liberal). It comes from my early days as a working journalist.

For years, I covered the many IBM antitrust trials, which culminated in the government suit filed on the last day of the Johnson administration. Later, I covered the AT&T antitrust trial that led to divestiture. I learned the following:

First, antitrust in our dynamic industry is almost impossible to prove under the Sherman Antitrust Act. IBM's decline as a "monopoly" was well under way from natural causes long before the trial ended. AT&T had good cause to break itself apart for competitive reasons

long before Judge Harold Greene forced the issue. This industry is so young, vibrant and competitive that it's hard to prove the harm in monopoly power. And Microsoft has a smaller portion of the software industry than IBM had of the computer industry.

Second, the defendants (Microsoft, IBM, AT&T) have more money and better lawyers than the government. Day after day, I'd watch a phalanx of IBM lawyers — each of whom probably made more money in a year than the government's legal team — grind away at the morale and determination of their outnumbered foes in the Foley Square courtroom. You think Microsoft won't make mincemeat of our public servants?

Third, the government's motivation is political. Reno wouldn't pick this fight if she didn't think there would be some positive fallout for her and the Clinton/Gore team. You think her successors are going to carry on her fight against a company that many of its customers think is a good guy? While Microsoft's lawyers are fighting for their own and their client's wealth, the government lawyers will be wondering when a new regime at Justice will hang them out to dry.

TIME ON THEIR SIDE

Fourth, time favors the defendant. The minute a lawsuit is filed, the issues are frozen in time. Entropy erodes the government's case. Microsoft will be able to string this out for years and will have plenty of time to re-



The industry is too dynamic a place to prove an antitrust case.

organize pending a settlement or adverse decision. Bill Gates isn't going to lose much money or sleep over this.

And fifth, the other guys are just as bad. For every predatory practice alleged in the antitrust suits against IBM, you could find one or more shady practices on the plaintiffs' part. After a while in the IBM case, it began to look as if the cure wouldn't be much better than the disease. And deregulation created the benefit for customers, not busting up AT&T.

I doubt that Microsoft will let this issue get to a trial or that Justice will go after Microsoft on anything but the narrowest of terms. I don't see what Janet Reno, Bill Clinton or Al Gore have to gain here after the initial flurry of publicity. But \$365 million is a small price for Microsoft to pay to own the corporate Internet desktop.

My prediction? Watch for Microsoft to stall and the government to cool its jets. This issue will go away. □

Gantz is a senior vice president at International Data Corp. in Framingham, Mass. His Internet address is jgantz@idcresearch.com.

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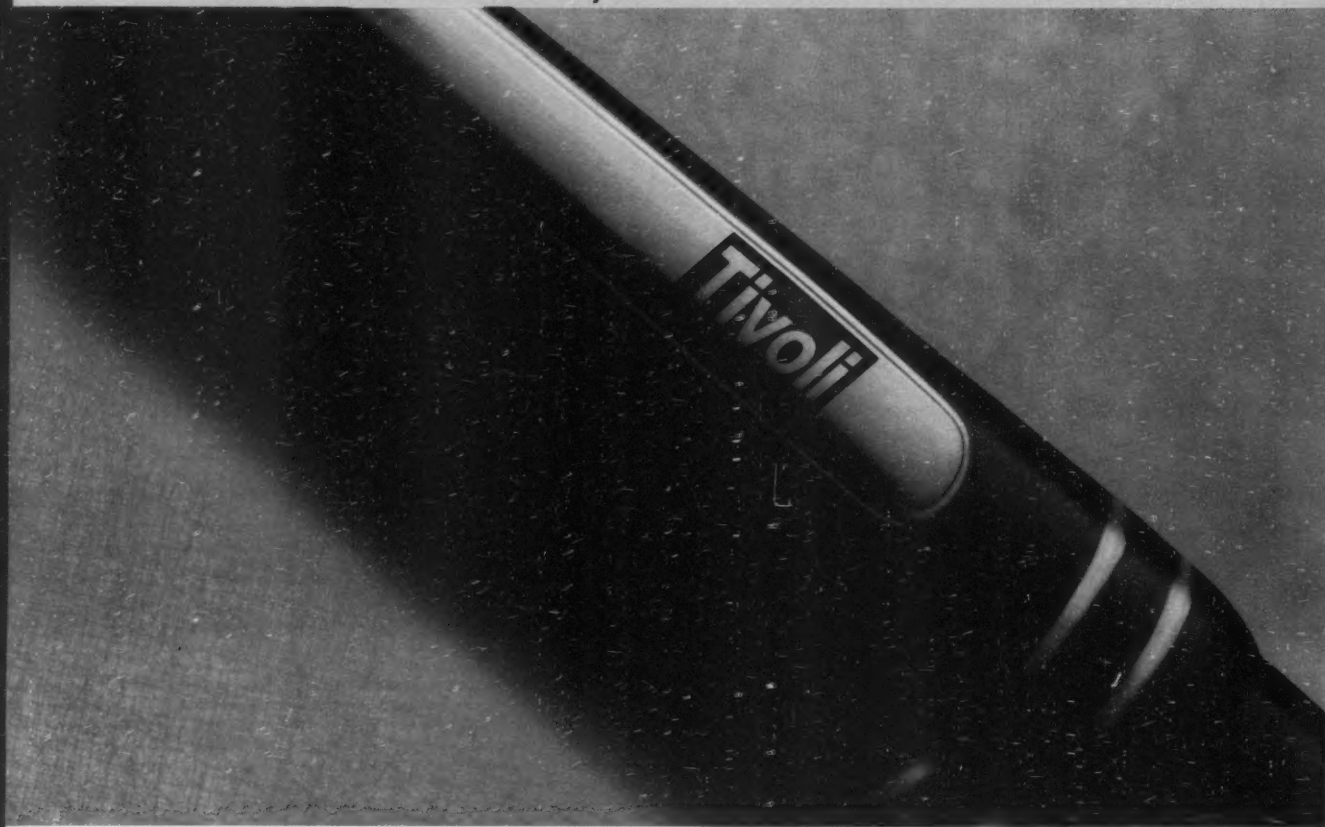
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Briefs

Year 2000 disclosure

Public companies must disclose the following year 2000-related issues:

■ **Costs if the year 2000 causes future sales and profits to be off-kilter with past sales and profits**

■ **Costs and consequences of not addressing year 2000 issues**

■ **Whether the year 2000 could affect products, services or competitive position**

Source: Securities and Exchange Commission

Visa tests E-money

Visa International, Inc. in Foster City, Calif., and Unisys Corp. have developed an implementation service that will allow Visa's member banks to test its Visa Cash product, a stored-value card that processes money in the form of electronic data.

Under the agreement, Blue Bell, Pa.-based Unisys will provide software, project management and integration services to Visa banks, company officials said. Banc One Corp. in Columbus, Ohio, will be the first bank to use the service.

Year 2000 pledge

Cap Gemini America in New York announced that it will guarantee 100% completion of year 2000 renovations in four weeks.

The renovation guarantee applies to Cobol code running under IBM MVS systems that range between 750,000 and 1.5 million lines of code.

Under the guarantee, if a client isn't satisfied with the quality of the renovation, Cap Gemini will correct any renovation defects free of charge, company officials said. The client may also choose to return the renovated code for a full refund within 90 days of delivery.

Women repave road to success

By Laura DiDio

CARLENE ELLIS, Intel Corp.'s CIO and vice president of technology, made it through a window in the glass ceiling 11 years ago when she became an officer of the company.

How did she do it? "I'm the biggest risk taker you'll ever meet, and I don't play racquetball," Ellis said.

Ellis and dozens of other high-level female executives are rewriting the rules on how women can make it to the top at Fortune 1,000 businesses. Forming close alliances, taking



Source: "Women and the Glass Ceiling" by Dr. Carol Gallagher

risks and motivating co-workers to achieve their goals are the methods that helped propel 75 women executives to top man-

Women get to the top not by mimicking men's behavior, but with:

- ▶ **Strong alliances with peers and supervisors**
- ▶ **Technical competence**
- ▶ **High performance in meeting goals**
- ▶ **Endurance**

agement posts, a newly published study has found.

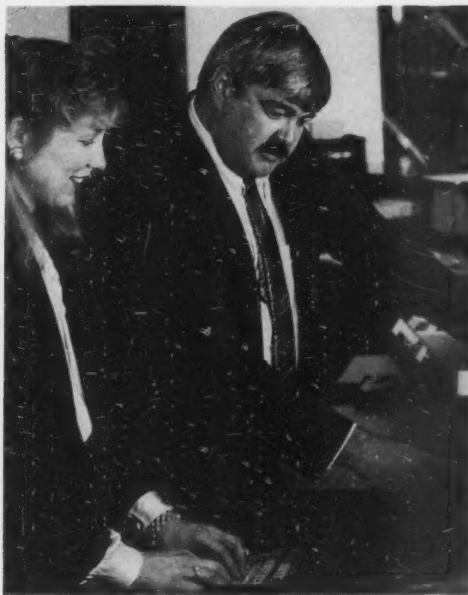
The study, "Women and the Glass Ceiling" by Dr. Carol Gallagher, a psychologist and principal at American Management Systems, Inc. in Fairfax, Va., is also the focus of a conference this Friday in Monterey, Calif., that will host the women who participated in Gallagher's study.

Gallagher's findings, based on 18 months of interviews with top female executives at Fortune 1,000 companies, contradicted

Women, page 42

Technology checks in

▶ **Hotel chain books systems to boost sales**



Choice Hotels' new property management systems will automate hotel from check-in through billing

By Craig Stedman

TECHNOLOGY is fast becoming a key tool for boosting revenue in the hotel business. And Choice Hotels International, Inc. is a prime example.

Like other hotel chains, Choice has always spent big money on its central reservations system. But now the Silver Spring, Md.-based company is moving on numerous fronts to

Hotel, page 40

Fund network bearish about the Internet

By Thomas Hoffman

SO MANY ONLINE companies are scrambling to set up Internet-based business models. But FundServ, Inc. isn't one of them.

FundServ is a Toronto-based mutual fund network that routes 80% of Canada's 8 million annual fund trades among mutual fund companies, financial intermediaries and broker dealers.

Gordon Divitt, the company's president, is pushing FundServ to develop more World Wide Web browser-based applications to make trade data more accessible to its clients. But like other players in the mutual fund industry, Divitt is being very cautious about doing any serious production work over the Web.

For FundServ, processing trades over the Internet "is a long way away," Divitt said. FundServ runs a private frame-

Fund network, page 40

WORKFLOW MANAGEMENT

Utility hopes IT overhaul recharges customer service

By Jaikumar Vijayan

CALL IT AN EFFORT to get current with existing technologies.

Virginia Power, a Richmond, Va.-based utility that serves more than 2 million customers across an area the size of South Carolina, has just embarked on a massive overhaul of some of its core information technology processes and technologies.

The goal is to improve customer service and cut operations costs by developing a new workflow management and geographic information system (GIS) that integrates and automates many of the utility's existing processes and data.

When the project is finished, service engineers who now sift through thousands of paper maps will be able to pinpoint the locations of electricity poles



Virginia Power's upgrade will let staffers find utility poles with computerized searches

with computerized searches, among other things.

To be completed in late 1999, the project will help the utility improve management of all its

Utility, page 40

Hotel chain books new systems

CONTINUED FROM PAGE 39

put more powerful technical capabilities in the hands of its local franchisees and its marketing and franchise management departments.

The goal is to help the \$430 million international chain's properties get more revenue out of their rooms, said Gary Thomson, vice president of information systems at the company's data center in Phoenix.

"Hotels have not been a highly technology-driven industry at the local level," Thomson said. "We really weren't pushing the whole idea of trying to generate additional revenues there. But we felt like we were leaving money on the table."

Choice is changing its ways big-time now. The company, which franchises a variety of mostly midpriced hotels, is rolling out the following projects aimed at turning information into more business:

- A local property management

system based on Microsoft Corp.'s Windows NT and SQL Server database. The system, which automates hotel management from check-in through billing, has been installed at about 300 sites since May and is expected to be placed at 2,500 U.S. hotels by the end of 1999, Thomson said.

- A satellite network that ties the property management software to Choice's Unix-based central reservation system, which runs on an Informix Software, Inc. database. Thomson said the satellite links, which are at 100 hotels now, will give Choice a better shot at filling rooms that haven't been reserved locally.

- A yield management application, in testing now and due next year, that is supposed to help hotels get the best possible rates on room bookings.

- An Informix-based data warehouse, scheduled to go live in

January, that will store information on guests for marketing analysis uses.

■ An intranet and companion franchise management system, also built on Informix databases, to give employees a more complete picture of the hotels they oversee. Both went into use in the past five months.

NO MORE GUESSING

Choice's new applications should automate "what would have been a lot of guesswork in the past for the hotels," said Bill Clegg, senior director of franchise service in the company's Charlotte, N.C., regional office. For example, decisions on when to start discounting room rates mostly were left to intuition until now, Clegg said.

Jeff Griswold, a consultant who works with hotel companies on technology matters, said Choice has been among the most enthusiastic about beefing

CHOICE HOTELS INTERNATIONAL

Franchises: Clarion, Comfort and Quality Inns, plus four other hotel brands

Annual revenue: \$430.9 million

Number of franchised hotels: 4,200-plus

Problem: Needed to automate individual hotels and make more data available to its franchising managers and marketing employees

Solution: Projects include a property management system and a data warehouse

up its IS capabilities.

But Choice isn't alone in using technology to boost sales. For example, HFS, Inc. in Parsippany, N.J., and Promus Hotel Corp. in Memphis also are implementing local hotel management systems. HFS is also spending \$5.5 million to build a data warehouse with information on customers across all of its brands, which include rental-car and real estate businesses [CW, Aug. 18].

"Many [hotels] have been in the Dark Ages on technology," said Griswold, who works at

Chervenk, Keane & Co. in New York. "But it's an absolute necessity now to be able to track your guests and know what they like."

Thomson declined to say how much Choice is investing in all its projects. Training is a big issue at individual hotels, "where you have a very transient workforce," he said. Choice has more than 30 IS employees running both local and regional training classes, and it developed a CD-ROM to help hotel employees learn the new technology. □

Fund network bearish

CONTINUED FROM PAGE 39

relay network across Canada and taps in to a public frame-relay network to exchange cross-border traffic with companies such as Fidelity Investments in the U.S.

"I think I do a better job servicing customers using a private intranet where we still have control over the pipe," he said.

Divitt has the support of at least one FundServ customer. Because FundServ serves mutual fund companies that sell their products primarily through financial intermediaries, "there would be a lot of concern about sales information going across the Internet," said Brian Gore, a vice president at AGF Management Ltd., a Toronto-based management and distribution company for mutual funds.

There have been "a whole bunch of concerns" among mutual fund companies about using the Internet for trade processing, including the standard security and reliability issues that revolve around clearing and settling transactions, said Octavio Marenzi, research director at Meriden Research, Inc., a Needham, Mass.-based financial services consultant.

Web-enabled organizations that have a few years of online

experience have learned that the cost benefits of running operations over a "free" network "aren't as great as you might think," especially after you factor in network management fees for an Internet service provider, Marenzi said.

Divitt agreed. "There are more hidden costs on the Internet," such as security and encryption costs, than using a private intranet, he said.

FundServ's network operating costs have jumped 33% over the past three years. But hidden Internet costs are one of the reasons why FundServ plans to stick with its TCP/IP network, Divitt said. FundServ's communications cloud is fairly complex. In addition to the frame-relay networks, the company uses X.25 and fiber-optic networks to connect it to 300 broker dealers and 60 mutual fund companies across Canada.

CLIENTS HELP THEMSELVES

Last March, FundServ began developing browser-based interfaces to let its clients check on the status of activities such as the availability of contract files over the private network. The browser-based applications, developed using Microsoft Corp.'s

Internet Explorer, allow FundServ to offer some help desk functions over the network and "get people accustomed to using these browser front ends," Divitt said.

The networks, which FundServ built with help from Tanning Technology Corp., a systems integrator in Denver, have gone a long way toward supporting FundServ's growth. Three years ago, Tanning helped FundServ build a transaction processing monitor to control the routing and processing of fund trades among clients.

The system, which houses an Oracle Corp. database running on Sun Microsystems, Inc. servers, has helped FundServ increase its monthly processing volumes more than tenfold, from 52,000 transactions in February 1995 to more than 800,000 transactions in February 1997.

FundServ plans to extend other browser-based applications to clients next year and to replace their "clunky" VT-220 screens with browser-enabled PCs to check on trades and launch ad hoc queries, Divitt said. He said those applications and all other operations will continue to be run over a private network.

"We're committed to controlling bandwidth for a long time to come," Divitt said. □

Utility

CONTINUED FROM PAGE 39

facilities, records, maps, scheduling and human resources. That, in turn, will help Virginia Power increase employee productivity, improve customer response times and reduce the cost of operating crews, said Marvin Walker, a project manager at the utility.

The integrated work management/GIS is part of a larger \$100 million overhaul of the IT services and support infrastructure at Virginia Power.

"This is going to completely change the way we do work in this part of Virginia Power," Walker said. The biggest challenge, he said, will be getting the 700 to 800 eventual users of the new system up to speed on some of the automated procedures and processes the system will bring.

Such sweeping process changes are often what it takes for some corporations to pull aging IT infrastructures and processes to more competitive levels, said Gerry Murray, an analyst at International Data Corp. in Framingham, Mass.

"Typically, many of the policies, procedures and other data [of companies in previously regulated industries] are stored on archaic mainframes or paper-

based systems that resist change," Murray said. "As a result, there often is an incredible amount of procedural and operational inefficiencies."

To help pull itself out of such an environment, Virginia Power has roped in the services of Logica, Inc., a U.K. professional services organization, to act as the main integrator.

Logica will replace Virginia Power's mainframe-based work management system with the integrated systems. The new client/server-based system will be composed of workflow management software from Logica, as well as a range of job planning, mapping and design software from other vendors.

Most of the data that will flow through the integrated workflow/GIS system will be the same information that is available today. But all of it will be available centrally and in an automated fashion instead of being widely dispersed and sometimes on paper, as it is today.

For instance, work requests will automatically be routed through a series of predefined, formal processes such as scheduling, construction, closing and archiving of the request.

Similarly, the integrated GIS capability means Virginia Power engineers will have instant electronic access to detailed maps of the entire area covered by the company. □

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*Dan Bend,
Data Warehouse Manager
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**Uniting the WEB
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Women repave road to success

CONTINUED FROM PAGE 39

the conventional wisdom of how women succeed in business.

"When I started, I believed women had to network the way men do, that they had to play it safe, be ruthless, pro-

duce results that outpace their male counterparts and play the man's game in order to crack the glass ceiling," Gallagher said. But the women debunked those myths.

The common denominator among the 75 female executives studied was a set of four characteristics: competency in their chosen fields, outcomes that entailed high performance, relationships that in-

involved alliances at all levels both within and outside the organization and endurance.

Ellis, based at Intel's Santa Clara, Calif., headquarters, said she considers traditional networking techniques such as exchanging business cards at cocktail parties a waste of time.

"Neither myself nor any of the women executives I know have the time to stop off at the bar after work or play a game of racquetball. We're too busy taking care of the home and kids," Ellis said.

Like Ellis, Dawn Lepore, chief information officer at Charles Schwab & Co., a San Francisco-based brokerage, credited the help of a few good men and women and her willingness to take chances in helping her become Schwab's first female CIO.

Four years ago, when Schwab was faced with a total network overhaul, no one wanted the job. Except Lepore, that is, who at the time was a senior vice president. "Whoever led the project was either going to win big or fail big. I was terrified but volunteered anyway," she said.

Lepore succeeded by "relentlessly looking" for the best people she could find, getting them involved in the migration and listening to their advice. Doing that buried another stereotype: that a woman has to be as ruthless as the *Melrose Place* character portrayed by Heather Locklear. Lepore's promotion to CIO, her superiors told her, was largely due to her high rating among her peers.

THE THRILL OF THE CHALLENGE

All the women studied said they abandoned job security at established firms and actively sought challenges.

Connie Galley, president and CEO of TSI International Software, Inc., an applications integration software company in Wilton, Conn., said she has "no interest in playing it safe." In 1985, she left the safety of an established firm — The Dun & Bradstreet Corp. — to form the TSI spin-off. "It was an opportunity, and I convinced 50 of my peers at D&B to come along," Galley said.

Gloria Salsedo-Everett, vice president of network engineering and operations at AirTouch Communications, a San Francisco wireless company, also thrives on change and challenge. She abandoned the "comfort zone" of Pacific Telephone in 1983 to join Pactel Wireless. "It was a lateral move professionally to a completely new field — cellular phones — that I knew nothing about," she said.

Salsedo-Everett said being in a vertical market such as high technology made it "easier to prove my competency than other softer areas of business like marketing or administration."

That sentiment was echoed by Lin Knapp, chief knowledge officer at Coopers & Lybrand LLP, the New York accounting firm. "High technology is much more open to women executives," Knapp said. By contrast, she said, professional services companies and law firms are still "extraordinarily dominated by males in the top positions." □



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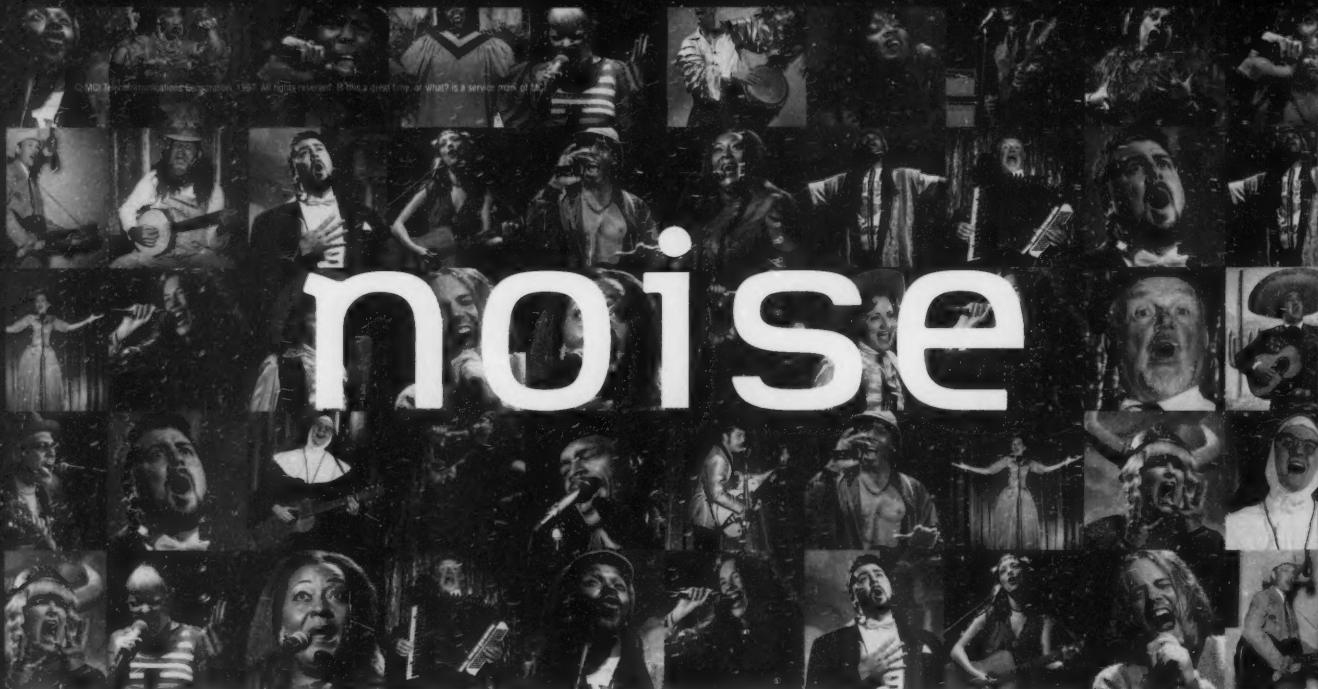
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The Internet

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Briefs

PERVASIVE INTRANETS

Companies that have at least 75% of their desktops connected to an intranet:

82%*
Three
years
from now

37%
Now

* Projected

Base: 650 IS professionals
Source: Delphi Consulting Group, Inc., Boston

PGP banks license

Pretty Good Privacy, Inc. has received what it claims is the broadest encryption export license yet issued to sell electronic-mail and messaging software to banks overseas. The San Mateo, Calif., company's license lets it ship PGP for Business Security 5.5, 128-bit software that provides banks with secure internal and bank-to-bank electronic communications and transactions.

Group pushes privacy

Truste (<http://truste.com>), the nonprofit Internet privacy initiative, challenged the online industry to adopt World Wide Web site privacy policies. The group wants the top 100 most-frequented Web sites to post their policies by March. To pressure companies, Truste set up an online petition urging site owners to divulge what they will or won't do with personal information collected from visitors.

Carrier costs

Use of the Internet for voice and fax calls could cost carriers \$8 billion in lost revenue worldwide over the next four years, according to a study by Action Information Services (AIS) in Washington, a consultancy that has many carriers and Internet service providers as clients. Cut-rate telephone calls over the 'net will change the telecommunications business, especially for international calling, according to the study. Lost revenue should total nearly \$1 billion next year, AIS said, with nearly \$3.5 billion lost in 2001.

Dow techs meet and greet users

By Julia King
PRINCETON, N.J.

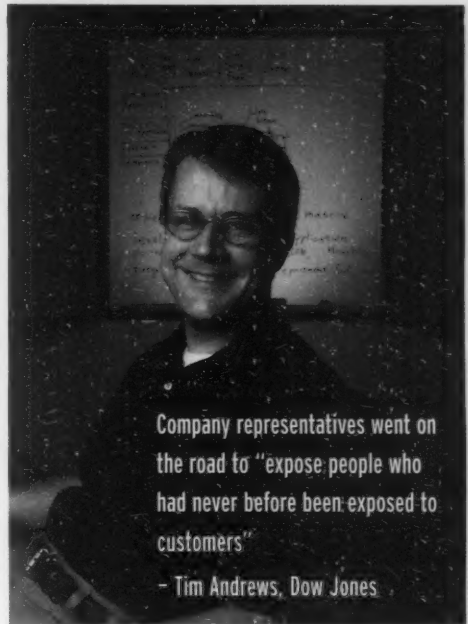
ONE EARLY APRIL morning in 1995, Tim Andrews packed 11 of his co-workers at Dow Jones Interactive Publishing into two vans and set out on a weeklong mission to find out exactly what users would want from a

Global Operations, was among the dozen.

Time and again, DeLorenzo said, customers told him the same thing. The new service should be fast — very fast — and easy to navigate. Later, those would become among the main reasons Dow launched an extranet that offers direct

frame-relay connections. Users also wanted autonomy. Sales and marketing people in particular wanted to do their own searches rather than submit research requests to corporate librarians. They wanted access to a broad spectrum of information sources, all of which they could quickly and easily navigate by PC.

Dow Jones, page 47



Company representatives went on the road to "expose people who had never before been exposed to customers"

— Tim Andrews, Dow Jones

Electronic catalog seen as time, money saver

Online Universal Catalog highlights

- Customized pricing and supply information for a company's contract vendors
- Searchable database
- Online ordering option

By Sharon Machlis

TWO MAJOR service companies have launched online catalog pilot projects they hope will shave time and money off the now largely manual process of ordering office supplies.

The tests, at Blue Cross and Blue Shield Association in Chicago and Charles Schwab & Co. in San Francisco, will use a

customized electronic catalog hosted by a service vendor. The goal is to conduct business with the vendors it has under contract at negotiated prices.

The idea is to make it easier for employees to access that information — and make it more likely that they will buy from the approved vendor list, at the lowest cost.

"Work is required to populate

the catalog, but once it's done, it's done," said Jonathan Handler, contract manager for information technology at Blue Cross and Blue Shield. Then employees need to be encouraged to learn to use the system, which uses an Internet browser as a front end.

Although he hasn't estimated cost savings for the project yet,

Electronic catalog, page 47

Web-based technical support offers just the FAQs

REVIEW ▶ Right Now unifies product, support and consulting

By David Strom

I SPEND A LOT of time talking to vendors about their products. The words I never want to hear on the telephone from their technical support folks are "You are the first person to call us with that problem." Misery loves company, and solving a

glitch is always easier when you find someone else who has faced the exact same issue.

That's the idea behind a new service offered by a start-up company in Bozeman, Mont., called Right Now Technologies, Inc. The offering, Right Now Web, is actually a series of different things: part product, part outsourced technical support and part consulting. But it works and is a viable option for vendors and companies that want to get people off the

phones and on with their daily computing lives.

Actually, Right Now Web doesn't have to be used at all for tracking computer-related problems. It can be used by any company whose products require technical support, especially those that have already assembled long lists of frequently asked questions (FAQ) that solve most customer problems.

It makes searching the FAQ more palatable and is much less

Technical support, page 47



REVIEW ▶

Right Now Web

RIGHT NOW TECHNOLOGIES, INC.

Bozeman, Mont.
www.rightnowtech.com

Pros: Handles customer queries and searches FAQ knowledge base via the Web.

Cons: Importing a large knowledge base can be expensive.

Price: Outsourced for \$250 per month or \$5,000 license and \$1,000-per-year maintenance.

YEAR 1980
ZEN

YEAR 1990
YOGA

YEAR 2000
PERITUS

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Reengineering, Rightsizing.

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Dow Jones gets to know users

CONTINUED FROM PAGE 45

Many of those suggestions found their way into the Windows-based dial-up news service that came 12 months after the development team's first joyride.

But now, virtually all of them have been incorporated into Dow Jones Interactive (<http://djinteractive>), the company's new World Wide Web-based news and research service.

Launched eight weeks ago and already installed on tens of thousands of desktops, the service contains a searchable library of almost 4,000 publications, including the Dow-owned *The Wall Street Journal*; reviews of and direct links to more than 1,000 business Web sites; and a custom news-alerting service that continuously informs users via electronic mail of developments at companies and industries they track.

But what really differentiates the service is users' ability to integrate that information into their own corporate intranets.

Beginning next year, Dow Jones will even begin selling a "starter tool kit" to help customers reformat its content for internal posting.

FAST AND SECURE

Customers can access the service over the Internet or via a private extranet, a strategy that DeLorenzo pushed for after listening to users' repeated demands for both fast and secure access.

"We had to be able to guarantee service levels that internet providers can't guarantee," DeLorenzo said. With extranets, "customers can have their own private frame-relay connection and don't have to deal with the Internet cloud or traffic congestion," he said.

"What we're doing is licensing the product and the ability to create links to the content," said Andrews, editor and executive director of enterprise products at Dow Jones Interactive Publishing.

"We think the real power is letting customers integrate content into the way they do business," he said.

So does Trish Foy, director of Coopers & Lybrand LLP's Knowledge Strategies Group, which provides about 17,000 employees with access to the Dow Jones service via its intranet-based Cyberlyb.

"If one of our consultants is researching mergers and acqui-

sitions, they can just log into the intranet and Cyberlyb and immediately have access to a full compendium of research services," Foy said.

Previously, she said, many Coopers & Lybrand staffers had individual access to electronic news services, which was more expensive than the enterprise-wide flat fee that the firm now pays Dow Jones.

Another benefit is that Coopers & Lybrand's librarians and corporate researchers can now focus on providing higher-value services.

"Now, we might actually do our own industry report or consolidate information because we're not doing data dumps and handing them off to people," Foy said.

Meanwhile, back in Princeton, Andrews is busy planning another road trip.

This time, he's thinking about renting a couple of train cars, including a sleeper. Another trip will give the development team a chance to get updates from customers and get reacquainted with one another.

"When you travel with people, you hear about everything," Andrews said. "You find out things you didn't even want to know. By about the third day, you know everything about their families, everything about their kids, everything about their failed marriages and everything about the foods they like and don't like. But we're all still very close friends and very involved." □

Companies try electronic catalog

CONTINUED FROM PAGE 45

Handler said it will save the time spent thumbing through paper catalogs and will save money by simplifying the process of finding the best prices.

Start-up Requisite Technology, Inc. in Boulder, Colo., is supplying the catalog software and will host the server and handle transactions.

It costs about \$50,000 to \$100,000 to set up a company's custom catalog, plus a subscription fee based on the number of users, company officials said. There is no per-transaction fee.

The catalog will be tied back to suppliers for ordering.

There are currently two versions of the Requisite software for customers: one based on

Hypertext Markup Language (HTML) and a more powerful version built on Java. Handler said his company already is rolling out the HTML version but is still working out security issues for the Java one. The latter involves creating a tightly controlled opening in the company's firewall. "You've got to make sure you've done the security right," he said.

Schwab plans to use the technology for its buyers, which it hopes will free up those workers to spend more time negotiating contract pricing for the company instead of making calls for the latest pricing. Officials expect to make the catalog available to all employees for ordering goods and services. □

REVIEW ▶ Right Now Web

Technical support on Web provides just the FAQs

CONTINUED FROM PAGE 45

expensive than keeping operators standing by to answer questions.

It works like this: When a user or customer accesses your support site, Right Now Web's search engine lets them search for answers by subject or keyword. The search returns a list of related FAQs, which may have been authored by your support staff or captured from queries by earlier users — much in the same way that an Internet newsgroup works.

OLD IDEA, NEW APPROACH

Actually, the marriage of the World Wide Web to technical support has been consummated before. There are several vendors that will sell you a product that connects a browser to a live phone operator.

That is an interesting approach, but it assumes that customers can receive audio via the Internet, which isn't a foregone conclusion.

Right Now Web tries a different approach. You take a FAQ list and import it into Right Now's system. Using a Web browser without any special plug-ins, you can query the Right Now database and can see right away if the questions were relevant. Right Now Web is part search engine, part scoring system and part advice to the frustrated user — all rolled up inside your browser.

A similar but less satisfying approach is Account Mark, Inc.'s Helpanswers.com.

Right Now Web has several pieces. First is the knowledge base, which contains the series of questions and answers. It comes with its own search tool. You enter keywords to search for relevant items; nothing out of the ordinary there.

HERE'S THE MAGIC

But once you submit your query, you see the real magic of Right Now Web. With most Internet searches, you get a ton of chaff and very little wheat. With Right Now Web, you can focus on the relevant stuff because at the end of each potential solution is a question asking if it addressed your problem or not.

If it did, Right Now Web notes both the query and your response. It uses that information to rank the solution. That

is a deceptively simple system, but it helps target answers to your question by correlating the experience of previous users.

And that is just the user side of the system. Right Now Web also has an administrative side that lets corporations keep track of queries; print summary reports of how many people asked which question when; and see queries for which no answer was available. All those controls are available using a Web browser, of course.

There are several ways to assemble a Right Now system. You can license the software from Right Now directly and put the knowledge base on your own Windows NT server running SQL Server. That costs

Right Now Web is part search engine, part scoring system and part advice to the frustrated user all rolled up inside your browser.

\$5,000 plus annual maintenance of \$1,000, not including the NT and database server licenses. You can outsource the knowledge base to Right Now, and it will host it on its server farm for \$250 per month. That price includes up to five administrative log-ins and up to four hours of Right Now's time to set up your knowledge base.

To make that option work, you will need a link on your corporate home page to Right Now's site.

Right Now returns electronic-mail queries when users send in personal requests. It offers a free 30-day trial, as well.

The outsourcing method assumes that Right Now's servers will be running and will have a reliable Internet connection. But I had some availability problems one afternoon during my tests.

Right Now Web represents a unique way of adding technical support to your Web site in simple yet powerful ways. Live demonstrations are available at the company's Web site. □

Strom is an independent reviewer in Port Washington, N.Y. He can be reached at david@strom.com.

SHORT

Banks flock online

West Coast banks are moving quickly toward electronic banking, but they still aren't getting enough customer traffic to give them a return on their investments, according to a survey of about 400 banks by Deloitte & Touche LLP.

More than half the banks polled said they offer some electronic banking services, with the remaining banks making plans to offer those services.

Many banks said they offer electronic services to keep up with competitors. "It's not because there is an imminent return on investment, but because the guy next door is doing it," said Bola Ajere, a Deloitte analyst who worked on the report.

Of the banks that offer electronic services, 59% provide account information and money transfer services, and 27% provide online billing payments.

NEW PRODUCTS

PANASONIC OFFICE PRODUCTS CO. has announced the Panafax UF-770I, an Internet fax machine.

According to the Secaucus, N.J., company, users can direct the hardware fax machine to send faxes over the Internet by dialing in an electronic-mail address rather than a telephone number.

The hardware was designed to reduce

long-distance phone charges because users pay for only local Internet access when faxing to E-mail addresses.

It works by converting scanned faxes into Tag Image File Format files that are attached to Multipurpose Internet Mail Extension files.

The Panafax UF-770I costs \$4,695. **Panasonic Office Products**

(201) 348-7000
www.panasonic.com/office

OBJECTIVITY, INC. has announced Aziza Enterprise Web Manager, World Wide Web site management software for large intranets on Windows NT and Unix platforms.

According to the Mountain View,

Calif., company, the software has three components.

The Web Object Manager manages content on multiple servers and coordinates access for thousands of site editors. Web Management Clients let authorized users check out pages for editing and link tracking.

Two Web Content Servers — one Hypertext Transfer Protocol and one file transfer protocol — allow site authoring with browsers and applications such as Adobe Systems, Inc.'s PageMill.

Pricing starts at \$8,000 for one server, unlimited users and up to 500 pages of content.

Objectivity
(650) 254-7100
www.aziza.com

FRAMEWORK TECHNOLOGIES CORP. has announced Aspects Site Builder 2.0, software for building and managing engineering project Internet and intranet sites.

According to the Watertown, Mass., company, the Windows software helps users build engineering project World Wide Web sites with interrelated images, spreadsheets and computer-aided design drawings.

It uses a drag-and-drop interface for designers who aren't familiar with Hypertext Markup Language.

Once a site is completed, users can click on tabs or icons to view designs in progress or documentation such as electrical schematics.

The software costs \$3,000 per seat.

Framework Technologies
(617) 923-8890
www.frametech.com

HT COMMUNICATIONS, INC. has announced Internet Framer, a hardware device for connecting PCs to the Internet via frame relay.

According to the Simi Valley, Calif., company, the device establishes a point-to-point session between itself and the host PC. It then strips off the point-to-point protocol overhead before transmitting to the network over its 56K-bit/sec. frame-relay connection.

Internet Framer costs \$595.

HT Communications
(805) 579-1700
www.htcomm.com

INNOMEDIA, INC. has announced InfoTalk, a device for making long-distance calls over the Internet at local rates.

According to the Santa Clara, Calif., company, InfoTalk plugs in between the telephone handset and a normal telephone wall connection.

It uses the user's Internet account information and packet compression to route long-distance calls over the Internet.

The device has a built-in LCD screen and a data/fax modem.

InfoTalk costs \$299.95.

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Briefs

Exchange upgrade

Microsoft Corp. will announce the availability of Exchange 5.5, an upgrade of its messaging and groupware server, at Comdex/Fall '97 next week in Las Vegas. The upgrade will lift the 16G-byte limit on message stores, so companies can support 1,000 more users, compared with the few hundred they can support now on Exchange. It also will support Internet Message Access Protocol 4 and the Lightweight Directory Access Protocol specifications. And this release will include tools for connecting Exchange to Lotus Notes and mainframe mail systems.

Server to ship

Lucent Technologies, Inc. in Murray Hill, N.J., in January will ship the Lucent Conference Server, an audio conferencing system that works with most private branch exchanges. The server supports up to 96 participants in single or multiple conferences. It runs on Windows 95 or Windows NT. Pricing starts at \$74,000 for a 24-port system.

Vines to Notes

Computer Mail Services, Inc. in Southfield, Mich., is shipping Vino, software for migrating users of Banyan Systems, Inc.'s Vines to Lotus Notes. Vino can transfer messages, mailing lists, names and other address-book information from Vines to Notes. Pricing starts at \$5,000.

WE'RE STILL WIRED

Are you using wireless software and services to access E-mail?

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27%

No

73%

Base: 150 IS professionals

Source: International Data Corp., Framingham, Mass.

From bandwidth-poor to switch-rich



Millipore's Ram Prabhu: "No matter how much bandwidth we had [on our LANs], the users wanted more."

► Millipore widens pipes, eases database access

By Bob Wallace

MILLIPORE CORP. is known for filters that can sift tiny particles from air or water. But its business was hurt by a network that squeezed users through tiny pipelines to place orders or access applications.

The industrial filter maker now is upgrading its LANs and WANs to widen the pipes and improve access to critical applications on an Oracle Corp. database.

"Every other day we were firefighting," said Ram Prabhu, corporate communications manager at Millipore in Bedford, Mass. "The band-

width on our LANs was just not enough for quick access to the applications. There was no way the hubs could provide the bandwidth demanded by the applications."

The situation before switching became frustrating. "No matter how much bandwidth we had, the users wanted more," Prabhu recalled.

One area of concern was the call center Millipore uses to take orders from outside customers.

"One-third of our \$900 million in business comes over the phone. Agents go into the Oracle database and

Millipore, page 52

MIGRATION

Notes sniffer eases moves to Exchange

By Barb Cole-Gomolski

ASK ANYONE WHO has migrated from Lotus Development Corp.'s Notes to Microsoft Corp.'s Exchange, and they'll tell you: It isn't easy. And companies that run both systems and try to share information also face challenges.

Electronic-mail and discussion databases can be moved with relative ease between Notes and Exchange using third-party tools. The tricky part is moving applications — customized public folder databases with some business logic built in to them — that are based on the messaging systems, users said.

"I may wait a year before I solve this problem," said Mark Bennett, information systems manager at Security DBS, a division of Dresser Industries in Dallas. The company makes drill bits for oil wells.

Dresser is largely a Notes shop, but Security DBS uses Ex-

Notes sniffer, page 53

Diagnostic tool taps OpenView data

► SMARTS product builds custom logic

By Patrick Dryden

SYSTEM MANAGEMENT ARTS, INC. (SMARTS) is starting to apply its unique event correlation software to specific troubleshooting needs of information systems managers.

The White Plains, N.Y., company, which specializes in performance analysis, introduced InCharge last spring as a general-purpose engine for diagnosing failures in any complex environment.

But systems staffers balked at investing time and programming talent to teach InCharge what to analyze. They had to define all relevant relationships among hardware and software in a mathematical matrix that InCharge scans to quickly reveal the root cause of a problem from any symptoms.

SMARTS this week is launching the first in a series of focused versions of InCharge. Each will eliminate the need for users to develop models for analysis by adapting available

data about networks, systems or applications. "Now, InCharge is quicker to use and more intelligent because it can receive data you already have on hand," said beta-tester Frank Henderson, chief technology officer at Netplex Group, Inc. in McLean, Va.

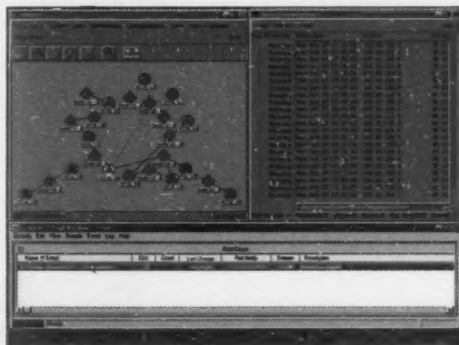
The first custom tool, InCharge IP Fault Manager, filters through all the alerts that flood managers of complex networks to find the most likely source of trouble. The first version inte-

grates with the most popular network management platform, Hewlett-Packard Co.'s OpenView Network Node Manager.

"Right out of the box, this solved our need to reveal which specific device failed in order to trigger a trouble ticket," said beta-tester Karl Kaufman, a network systems engineer at Electronic Data Systems Corp.

InCharge snaps right into the OpenView database and sends

Diagnostic tool, page 52



InCharge event correlation engine now links to HP OpenView; users don't have to build relational models for troubleshooting

Millipore widens pipes

CONTINUED FROM PAGE 51

enter orders and couldn't tolerate delays," Prabhu said.

The situation got worse earlier this year when Millipore acquired two companies, adding 1,100 employees.

Now with 7,000 employees, the company decided to install switched connections using equipment from 3Com Corp. Switching provides dedicated bandwidth, whereas shared hubs require users to contend for capacity.

"Our objective is to replace all shared hubs with switching," Prabhu said.

To ensure plentiful bandwidth between 3Com SuperStack I and II Ethernet switches, Prabhu installed a 100M bit/sec. Fast Ethernet backbone.

"We didn't have a network stability problem before the upgrade, but the performance after we went with 3Com switching has been tremendous," said Mike Doyle, senior database administrator at Millipore. "It's helped boost the performance of the Oracle applications as well."

Network upgrades are a popular way to improve database access, according to Infonetics Research Corp., a San Jose,

Calif., research and consulting firm. It recently released a study that showed that improving database access was the fourth-biggest influencer of high-speed LAN purchases.

Millipore officials considered higher-bandwidth technology such as Asynchronous Transfer Mode. But the company went with the 3Com Ethernet product because it used a technology with which Millipore was already familiar and provided an upgrade path to Gigabit Ethernet.

The switches improved LAN performance, but Prabhu also had to find a way to eliminate performance problems

on the company's Sprint Corp. frame-relay network.

Most remote sites had 56K bit/sec. frame-relay lines to the company's Bedford headquarters. But those sites didn't have direct Internet access. To get to the Internet, they had to compete with application data on the frame-relay lines to Bedford, where Millipore had a T1 connection to BBN Planet Corp., Prabhu explained. That meant each line was car-

Diagnostic tool

CONTINUED FROM PAGE 51

its diagnosis to the OpenView management station "so we don't have to build anything," Kaufman said.

The tool kit and logical language for InCharge aren't difficult to use for creating models, and the new interface to OpenView is a significant advantage, said beta-tester Gerald Murphy, director of network management services at RPM Consulting, Inc. in Columbia, Md.

"We had this operating within an hour at a bank customer," he said. InCharge helps by suppressing OpenView's duplicate alarms and listing probable causes for a problem, even when OpenView data is incomplete, he said.

OpenView users stand to gain a much more valuable function than maps and basic alerts, according to Bill Gassman, an analyst at Gartner Group, Inc. in Stamford, Conn. Trusting its diagnosis will take time, however, and SMARTS needs greater ability to respond once the problem is found, he said. "If InCharge proves itself on networks, it should be valuable for troubleshooting systems and applications as well," Gassman said.

SMARTS officials said they will support additional network management platforms with IP Fault Manager and enable InCharge to extract information for its relationship models from data sources that track wide-area networks, systems and applications. InCharge IP Fault Manager for HP OpenView costs \$25,000. It runs on Sun Microsystems, Inc.'s Solaris and HP's HP-UX. □



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rying critical application data and not-so-critical World Wide Web data at the same time. "We had to tell employees not to do Web traffic during work hours because the Oracle business users were suffering. And our entire company runs on Oracle," Prabhu said.

Prabhu said he hopes to alleviate the problem by giving remote sites direct Internet access rather than squeezing them through the gateway at Bedford. □

Notes sniffer eases migration to Exchange

CONTINUED FROM PAGE 51

change. As a result, there are certain corporatewide applications, such as those from the accounting department, that Security DBS workers need either to access from Notes or to migrate to Exchange.

The company uses software from LinkAge Software, Inc., which Microsoft bought last July, to let workers on Exchange share mail and discussion databases with Notes users.

But it has yet to port any Notes appli-

cations to Exchange, Bennett said.

At American International Group (AIG), an insurance company in New York, the IS department manually rewrote the company's Notes applications to run on Exchange. "The applications were redesigned, and it was a lot of work," said Jim Del Rossi, a technical specialist.

AUDITING TOOL

A new application from The Mesa Group in Newton, Mass., could make it easier for companies such as Security DBS and AIG to port Notes applications to Exchange.

The company will announce this week Application Assessment and Planning (ASAP), a product that audits Notes applications and provides reports that indicate how much work will be involved in the migration.

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Security DBS's Mark Bennett says workers at his company need to use both Notes and Exchange

ASAP generates reports that rate the complexity of the Notes application on a scale of 1 to 5 and estimate what will be involved in moving it to Exchange. For example, an application that uses lots of Notes-specific programming functions would be difficult to move to Exchange.

Del Rossi said ASAP would have been a big help when the insurance giant was planning its migration. Bennett said he likes the idea of ASAP, too. But he balked at Mesa's policy of requiring users to pay for evaluation units of the software. He said that could keep him from using ASAP.

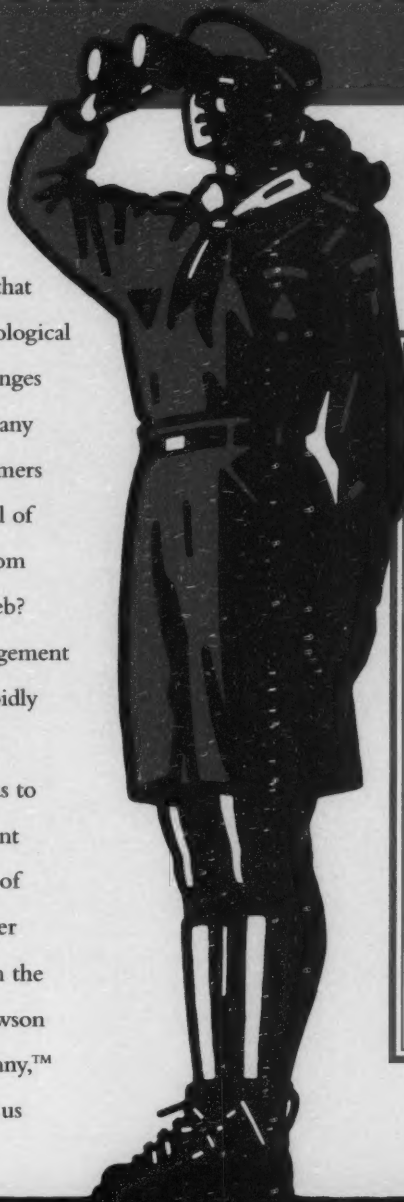
Tim Sloane, an analyst at Aberdeen Group, Inc. in Boston, called ASAP a good idea. "Anything that helps automate the [migration] process is nice," he said. But Sloane cautioned that although the tool might help with planning, it does little to ease the task of actually migrating the applications.

ASAP is available now. Pricing starts at \$5,000 for 1,000 databases. □

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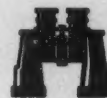


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Briefs

THE CHAIN GANG

Supply-chain management software market, 1996



- Supply-chain planning and execution
- Warehouse management systems
- Transportation management systems

Total revenue: \$419 million

Source: Advanced Manufacturing Research, Inc., Boston

Corel draws Alpha

Corel Corp. will develop a version of its CorelDraw 8 optimized for the Digital Equipment Corp. Alpha processor, the company said last week. CorelDraw 8 will be bundled with Digital's new Alpha workstations running Windows NT when the machines ship early next year. The Ottawa-based company will release versions for both Intel Corp. and Digital processors. CorelDraw 8 was released last month at the company's annual graphics gala showcasing the drawing program.

Sybase upgrade

Sybase, Inc. last week took another step in its strategy to "componentize" its product offerings with the release of Version 1.5 of DBComplete, the company's suite of 32-bit ActiveX components. DBComplete lets users build database applications using Microsoft Corp.'s Visual Basic programming language.

New capabilities include the ability to print any ActiveX control from a Visual Basic form and increased formatting options. It is available now for \$299 per developer seat with royalty-free runtime distribution.

Bank call center system pays dividends

By Matt Hamblen

FLEET FINANCIAL GROUP, Inc. in July began creating its own in-house call center and is raising revenue by turning customers who call for information into buyers of its products.

Analysts said Fleet's multi-million-dollar investment in the kind banks need to make to compete in regional and national markets for credit-card customers.

"We had to make it an industrial-strength call center able to support 75 million calls a year" and expandable to several call center locations with hundreds of sales agents, said Ann N.

Christensen, director of telephone banking at Fleet, based in Boston. In addition to setting up a call center for incoming calls, Fleet decided to expand the number of outbound sales calls it makes.

INTEGRATED SALES

In July, Fleet began to use call center software from Scopos Technology, Inc. in Emeryville, Calif., to allow 100 telephone sales agents in Framingham, Mass., to call up information about bank customers and contacts while also viewing sales prompts related to any of the bank's 80 products on a PC graphical interface.



"We had to make it an industrial-strength call center able to support 75 million calls a year."

— Ann N. Christensen,
Fleet Financial

That way, a customer calling for information on a checking account can also be told about the latest rate on a certificate of deposit, a low-interest credit card or another product that fits

Call center, page 56

PC UTILITIES

Briefcase simplifies remote access

By Gordon Mah Ung

NEED TO ACCESS a file from the road or check your schedule from an airport online kiosk?

Mountain View, Calif.-based Visto Corp. believes it has the answer with its new virtual briefcase for PCs and portables that use Windows 95 or NT. The product synchronizes user files with Visto's server and makes them available over the Internet from any browser.

Using the Visto Assistant client, files are automatically sent to Visto's server. Users can view and edit calendar and con-

Virtual briefcase, page 56

FedEx signs out workflow tool

► System eases package tracking

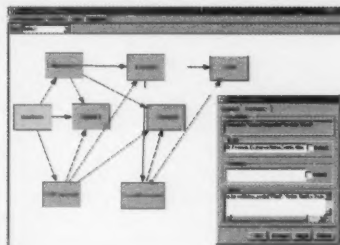
By Randy Weston

FOR LOGISTICS MANAGERS at Federal Express Corp., knowing where a package has been isn't very useful for planning purposes. But knowing when it is coming their way is.

That's why the package-delivery company has signed on to use a messaging and workflow management system from Vitria Technology, Inc. in Mountain View, Calif.

"Here in the Memphis hub, we are looking at a million-plus packages coming through our building every night between 11 p.m. and 2 a.m.," said David Anderson, manager of sort systems development at FedEx.

"What [Vitria's software] allows us to do is understand how a package flows through a



Vitria's Agiliti lets FedEx better plan and balance its nightly workload

facility," Anderson said. "We can see where it goes through the facility and how it hits. It lets people down the line know what packages are going to their ramp, or to a specific city or by product type. And all this is going on in real time as the sorting occurs."

Anderson explained that until now, managers didn't know what type or volume of packages were coming each night until a plane was unloaded. But now, information that is collected with scanning devices on packages from pickup to delivery is pushed to the managers using Vitria's Velociti. Using the Agiliti application, FedEx managers can track the process that the package goes through until it is delivered.

Anderson said such information allows the company to better plan and balance its nightly workload.

Workflow system, page 56

Snapshots

TOOLS FOR BUILDING DATA MARTS

Scalable data mart tools should include these features:

- Parallel data extraction, transformation and loading
- Graphical drag-and-drop development
- Dedicated calculation and data conversion engine
- Support for updating only data that has changed
- Built-in scheduling and troubleshooting capabilities
- Centralized management of informational meta data

Source: Patricia Seybold Group, Boston

Call center pays dividends

CONTINUED FROM PAGE 55

the customer's lifestyle and investment needs.

Scopus software's abilities to dig into customer needs will be magnified when Fleet goes online in February with a \$38 million data warehouse [CW, Sept. 22].

Scopus operates on top of new call center servers by Aspect Telecommunications Corp. in San Jose, Calif.

Even if a customer says he isn't interested in the agent's offer, the Scopus system makes it simple to record in a database what the customer said, Christensen said. That way, Fleet managers can get daily reports from all their phone contacts and modify their product offerings and sales pitches.

"Increasing revenue was the

basis of our decision to buy Scopus," Christensen said. Revenue has increased "measurably," and Fleet's multimillion-dollar investment should be returned in less than two years, she said.

CROSS-SELLING

Fleet has increased by 30% the number of customers converted from those calling for information to buyers. Also, revenue has increased because the system allows greater ease of what is called "cross-selling" of products related to the one a customer wants information about.

The software was developed internally around Fleet's seven-step selling process, which yielded a customized result and cut training time needed for the previous software. Training time

was cut from five weeks to four, Christensen said.

Scopus is one of about 10 software vendors in the call center arena, but it is distinct for its ability to be customized, said Mike Rozelsky, a consultant at Technology Solutions Co. in Boston.

Fleet said it picked Scopus over five other finalists because Scopus' program could be made more customer-centric, rather than tailored around a set of sales campaigns.

A good call center system is a real differentiator for a bank in a crowded market selling to small businesses and consumers, Rozelsky said.

"It really affects a bank's ability to influence a customer's buying patterns," he said. □

Workflow system

CONTINUED FROM PAGE 55

Vitria's server-based software systems ride underneath other business process software such as an order-entry system and can be programmed to set off warning and advance notice about events happening in the company. Together, Agiliti, which tracks and manages business processes, and Velociti, which is a "push"-based messaging system, work as both traffic cop and early warning alarm for data flowing through corporations.

"What they have is next-generation business process automation software," said Nathaniel Palmer, an analyst at Delphi Group, Inc. in Boston. "It's much more like workflow than traditional push [technology]. It is wide-area workflow, workflow across extranets and wide-area networks without client interaction."

Although some vendors, such as CrossRoads Software, Inc. in Burlingame, Calif., offer application integration software and others offer messaging software or publish-and-subscribe tools, Palmer said Vitria is the first to offer a package of all three. Palmer also predicted that business process automation vendors such as FileNet Corp. in Costa Mesa, Calif., and even enterprise resource planning software vendors such as SAP AG, will soon jump into this field.

Still, Palmer said users need

to be careful about using such software systems to alter their business processes. Just because it is easy to change the process, it doesn't mean you should, he said.

"The process, once captured, becomes a fundamental part of your organization," he said. "So, how you store that process, validate it and manage that process becomes a big issue."

Velociti, a publish-and-subscribe messaging server intro-

duced last spring, is available now. It costs \$4,995 per server. Agiliti, which manages and tracks multiple processes in a company across different applications and databases, was unveiled last week. It costs \$34,995 for a standard server.

Vitria last week also announced software called Connector which accelerates the flow of data within a company, particularly between disparate applications such as a legacy homegrown application and SAP's R/3 system.

No pricing information was released. □

Virtual briefcase eases network access to files

CONTINUED FROM PAGE 55

tact information through the browser but not word processing files or spreadsheets yet. Visto said users can examine those documents with a file viewer, such as the free utility from Microsoft Corp.

The goal is to provide business users with access to their information independent of device and location. User electronic mail can also be forwarded to the Visto Briefcase.

"The concept is good," said Rob Enderle, an analyst at Giga Information Group, Inc. in San Jose, Calif. But Enderle said he didn't see

much opportunity for Visto Briefcase to extend beyond small or midsized companies with small or unsophisticated information technology departments.

ACCESS CONCERNS

"The problem with large companies is that they really like to lock down the data, and they've got the resources to do that reasonably. They just don't like the idea of anybody else having access to corporate intellectual property," Enderle said.

Melissa Sader, Internet and online product manager at Sky-

Tel Corp. in Jacksonville, Miss., said she has used Visto successfully.

"It works real well for me. I travel a lot. I have multiple computers," Sader said. "It's just a real convenient way to store versions without worrying about carrying disks and copies."

Sader said SkyTel doesn't have dial-up access to the network or a policy that forbids use of such a service or storage of files. She said she expects that the company's IT department will consider it.

Still, Sader said she doesn't expect to put any sensitive information on it now. "I wouldn't go and put a departmental budget on it," she said.

Visto officials said their software uses a combination of security methods from RSA Data Security, Inc. in Redwood City, Calif., and technology from Netscape Communications Corp. using the Secure Sockets Layer encryption standard.

Visto President Doug Brackbill said the company also thinks its method is a better alternative than trying to keep files synchronized among a person's work desktop machine, laptop and home computer. □

"It's just a real convenient way to store versions without worrying about carrying disks and copies."

- Melissa Sader, SkyTel

NEW PRODUCTS

LEGATO SYSTEMS, INC. has announced NetWorker Power Edition for Microsoft Corp.'s Windows NT Server Enterprise Edition 4.0.

According to the Palo Alto, Calif., company, the storage management software provides backup and recovery of large Windows NT server installations. NetWorker supports symmetrical multiprocessing servers and servers clustered with the built-in Microsoft Cluster Server feature, previously called Wolfpack.

The software costs \$5,000.

Legato Systems
(650) 812-6000
www.legato.com

MICRO LOGIC CORP. has an-

nounced DiskMapper Version 2, a hard disk space-saving utility.

According to the South Hackensack, N.J., company, Version 2 provides many ways to clear disk space. It can find and display duplicate files graphically and list file extensions in order of the space they consume on the drive. The utility has a new "advisor" that provides information on file type and specifies an associated application that is launched when a file is double-clicked. It costs \$49.95.

Micro Logic
(201) 342-6518
www.miclog.com

JBS CORP. has announced

MultiView 2000 Version 3.0, a 32-bit terminal emulation suite for Windows 95 and Windows NT.

According to the Scotts Valley, Calif., company, the software gives PC users access to Unix applications through Windows-like interfaces and World Wide Web browsers. Unix applications are given a Windows-like appearance through buttons and bars. The software is browser embeddable so users can launch a terminal emulation session from a standard Web browser or any ActiveX document container.

MultiView 2000 costs \$199 for a single license.
JBS

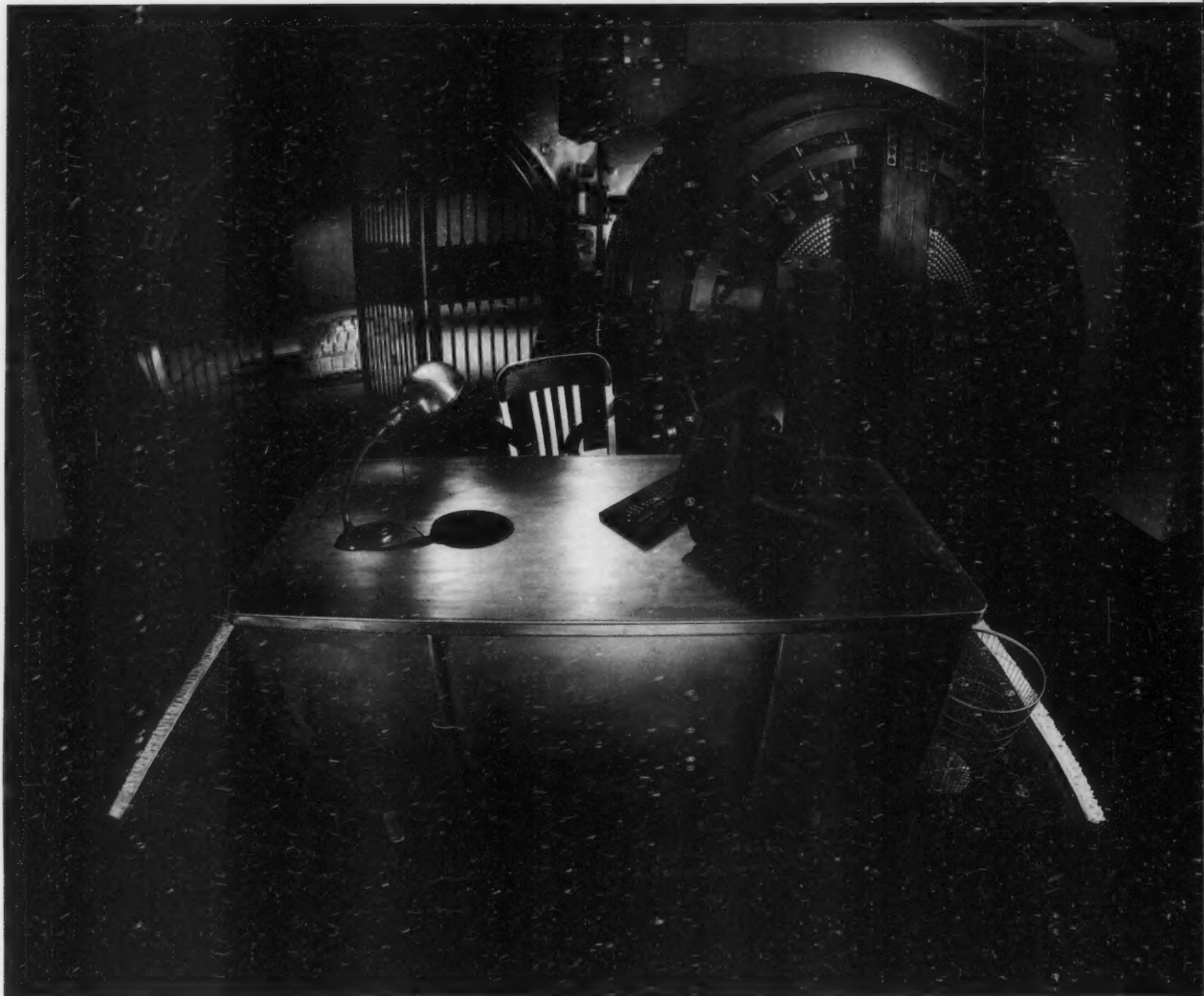
(408) 438-8300
www.jbs.com

SYSGENICS, INC. has announced E-work, Windows-based workflow software for managing business procedures in mid-size companies.

According to the New York company, the client/server software replaces paper-based procedures in the areas of administration, customer support, production tracking and finance. It includes a database for the forms, actions and rules necessary for completing a given procedure.

E-work costs \$249 per seat.
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(212) 265-1693
www.sysgenics.com

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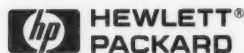
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Servers & PCs

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Briefs

Ampex tape library

Ampex Corp. in Dallas has announced the DST 712, an automated tape library with a capacity of 5.8T bytes. The system can use one or two different tape transports to move data at up to 40M byte/sec. Shipments begin next month. Prices start at \$150,000 for a single-drive configuration.

ThinkPad zooms up

IBM last week introduced a thin, lightweight notebook with a 233-MHz Intel Corp. Pentium MMX processor. The ThinkPad 560X weighs 4.1 pounds, is 1.2 inches thick and has 32M bytes of RAM, a 4G-byte hard drive and multimedia features. The notebook, available Nov. 14, costs \$4,299.

IBM also introduced an Enhanced Port Replicator that lets ThinkPad users easily connect monitors, printers and keyboards to their notebooks. The port replicator costs \$299.

Samsung processor

Samsung Electronics Co. has developed a 700-MHz Alpha processor, possibly the fastest chip ever created, company officials said. Samsung developed the chip using a 0.25-micron design and Digital Equipment Corp. technology. The company will start producing the chip next summer. The company said the 700-MHz speed is a conservative estimate and that the chip will probably run much faster. Digital and Samsung currently sell Alpha chips that run at 600 MHz.

New Libretto debuts

Irvine, Calif.-based Toshiba American Systems Corp. has announced its Libretto 70CT mininotebook. The 1.9-pound Libretto 70CT, an upgrade to the popular Libretto 50CT, is equipped with a 120-MHz Pentium processor with MMX technology, Windows 95, a 1.58G-byte hard drive and a 6.1-in. active-matrix display. It costs \$1,999 and will be available next month.

Users eye NT on clustered servers

► Compaq ramps up for next Pentium Pro

By April Jacobs

COMPAQ COMPUTER CORP.'s strategy to push its servers further into the cluster zone next year could meet the needs of users who say better performance is key to running mission-critical applications on Windows NT.

The company recently outlined its plans to deliver servers with Intel Corp.'s next-generation Pentium Pro, code-named Deschutes, in the first or second quarter next year. Compaq also plans to support clustering of

six to nine nodes within the next 18 months. The next version of the Pentium Pro is expected to be twice as fast as existing Pentium Pro processors — probably with an introductory speed of 700 MHz.

POWER UP DATABASES

For users such as Larry Garden, director of technical operations at Brewers Retail, Inc. in Mississauga, Ontario, Windows NT clustering would mean an opportunity to move from proprietary servers to NT for database applications.

MIDRANGE STORAGE

Server disks reach new landmarks

By Nancy Dillon

THE PAST TWO weeks delivered a few firsts for server storage.

There was the first 18G-byte drive to hit the market in quantity from IBM, Seagate Technol-

ogy, Inc.'s announcement that it has developed the first 18G-byte drive with a 10,000-rpm rotation speed, and IBM's entry into the 10,000-rpm disk drive market.

Faster disk rotation rates are important, analysts said, because the faster disks spin, the faster they can deliver information to users.

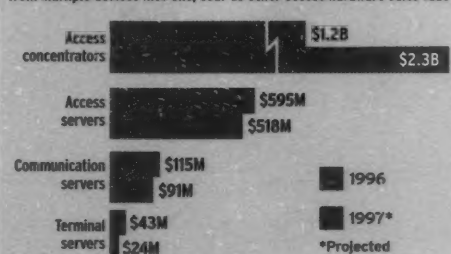
Also last week, Data General Corp. in Westboro, Mass., announced shipment of one of the first RAID-based disk arrays that use 18G-byte drives. Carlsbad, Calif.-based Artecon, Inc.

Server disks, page 62

Snapshots

GOING WITH THE FLOW

Sales of access concentrators, which combine voice, data and video traffic from multiple devices into one, soar as other access hardware sales fade



Source: Dell'Oro Group, Portola Valley, Calif.

WINDOWS NT CLUSTERING PLANS

Compaq

Supports multiple NT server clusters with six to nine nodes and Deschutes, the next generation of Pentium Pro

Digital

Offers NT clustering with Alpha-based servers, but not Intel-based servers

Compaq, Digital, Hewlett-Packard, Intel, NCR and Tandem Plan to support Wolfpack on the Wintel platform

"We are already running most of our applications on NT servers, but for our database we need more power and availability. If NT can scale up and clustering becomes a reality, we could use it across the board," Garden said.

"What this does for users is legitimize Intel as a scalable platform. And with the performance, it allows Intel to become an enterprise player, which they have wanted for a

very long time," said John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

Dunkle said Compaq is trying to leapfrog vendors such as Hewlett-Packard Co., which has an inside track on offering enterprise-class products based on Intel chips through the companies' joint processor development project. Compaq wants to compete in that league. "Com-

Users eye NT, page 62

Tape storage put to new enterprise uses

► Faster technology key to data access

By Tim Ouellette

TAPE STORAGE IS MOVING beyond backup.

Users have long dumped corporate data over the wall from disk subsystems into tape archives. But faster technology is giving them a chance to use tape as an integral piece of many enterprise operations.

Disk subsystems provide the fastest response time for mission-critical data. But the sheer amount of data users need to access these days as part of huge enterprise applications, such as data warehouses, requires affordable storage.

"Tape is a big part of our operations," said Dick Fernandez, assistant vice president of computing services at Insurance Services Office, Inc. "With all our storage pieces — including tape — working together, it keeps us a little bit ahead of the curve of the volume we have to deal with."

This is the kind of volume the Pearl River, N.Y., insurance company deals with: collecting 1.2 billion insurance records per year, maintaining at least 5.5 billion records online at any given time, holding data anywhere from five to 22 years and handling between 200,000 and 500,000 downloads per month.

The company is able to use tape systems almost like online storage, so users can access all the data they need.

"We store a lot of data on tape because our actuaries do

Tape storage, page 62

Insurance Services Office's data center handles:

- Eight StorageTek tape silos
- 50,000 additional cartridges stacked in archives
- 5.5 billion insurance records that must be available online at any one time

Server disks hit landmarks

CONTINUED FROM PAGE 61

days before announced its immediate support for 18G-byte drives in its RAID arrays. Both will ship with IBM's 18.2G-byte Ultrastar 18XP drives.

IBM's announcement that it is shipping its first 10,000-rpm drive, the 9.1G-byte Ultrastar 9ZX, was significant because it "gives the market for faster drives more dignity and an important alternative source," said Jim Porter, an analyst at Disk Trend, Inc. in Mountain View, Calif.

ronments, places with OLTP [online transaction processing] or data warehousing applications, these milliseconds will compound and make an important improvement in performance."

Steve Randich, chief information officer at the Chicago Stock Exchange, said the "faster high-capacity disk drives are relevant to [my] company's needs."

Randich supports 400 traders with real-time transaction processing. He said he has gone to

tem] fault, we want our data committed to disks."

Because solid-state disk drives hold data electronically, not on magnetic disks, power outages or other system failures result in a loss of data that hasn't been backed up.

NO BIG DEAL

Bill Sutphin, an engineering analyst at Home Federal Bank in Knoxville, Tenn., said he sees no compelling reason to move to 10,000-rpm drives.

"It's everyone's dream to have a drive system with instant update, but these 10,000-rpm drives aren't the answer. They're more of a checklist item for me," Sutphin said.

Sutphin supports 250 users with an OLTP system that is heavily cached on the bank's network servers. He has an AS/400 with 100G bytes of storage and three servers, each with eight to 30G bytes of storage.

Seagate announced at the end of last month its next-generation 10,000-rpm Cheetah server drives, at 4.5G, 9.1G and 18.2G bytes.

The new Cheetah drives use 3-in. disk platters, instead of standard 3.5-in. ones. Porter said the smaller platters helped Seagate solve the vibration, power-usage and cooling concerns associated with making a 10,000-rpm 18G-byte drive.

The new Cheetah drives will reach end users in the first quarter of next year.

Artecon's LynxArray with 18G-byte drives will be on display at Comdex/Fall '97. The list price for a 162G-byte system with nine 18G-byte drives is \$64,995. □

HIGH-END SERVER DISK DRIVES*

Vendor/drive	Capacity	RPM	List price
IBM			
Ultrastar 9ZX	9.1G bytes	10,000	\$1,245
Ultrastar 18XP	18.2G bytes	7,200	\$1,745
Ultrastar 9ES	9.1G bytes	7,200	\$900
Seagate			
Cheetah 9LP	9.1G bytes	10,000	\$1,090
Cheetah 18	18.2G bytes	10,000	\$1,755
Fujitsu			
Enterprise 9	9.1G bytes	10,000	\$1,095
Enterprise 9	9.1G bytes	7,200	\$895
Enterprise 18	18.2G bytes	7,200	\$1,595

*Drives come in SCSI or Fibre Channel interfaces

The industry standard is still 7,200 rpm, Porter said, although Scotts Valley, Calif.-based Seagate had the first 10,000-rpm drive early this year. Fujitsu Computer Products of America, Inc. in San Jose, Calif., also offers a 10,000-rpm drive (see chart).

"The faster rotation of the 10,000-rpm drives reduces latency time and can cut milliseconds off of seek times," Porter said. "In high-transaction envi-

solid-state disks, which are storage on high-speed dynamic RAM memory chips, when traditional disk drives haven't proven fast enough. Randich said he would have to evaluate the new storage subsystems to check out their performance gains.

"The more we can use disk the better, because hard disks are cheaper and more secure than solid-state storage," Randich said. "If there is a [sys-

Users eye NT on cluster servers

CONTINUED FROM PAGE 61

paq wants to be a full-line computer supplier," he said.

Compaq and other vendors, including HP and Digital Equipment Corp., support Microsoft's Wolfpack clustering technology.

Wolfpack lets users cluster two NT-based servers. But functionally those servers can provide basic fail-over, not load sharing, which would allow them to work together to beef up performance.

Fail-over provides a mirrored

back-up server that lets users resume their work almost immediately if the primary server goes down.

OTHER OPTIONS

Others have long produced their specific brands of clustering. Digital offers load-sharing clustering for NT with its servers running on Alpha chips, and HP supports clustering with its Unix boxes, for example.

Features such as load-sharing are expected in the middle of

next year, when Microsoft releases Windows NT 5.0.

Some users also look forward to simpler management without having to support multiple server and desktop operating systems. "This will be a good thing, because it can save me from having to support so many different types of hardware and software, but it's not here yet," said one information systems director at a New York-based entertainment company, who requested anonymity. □

Intel to aim new chip at low-cost PC market

By James Niccolai

INTEL CORP. IS preparing a slimmed-down Pentium II processor for low-cost PCs, officials said last week.

An Intel spokesman confirmed the company's plans to bring the cost of the Pentium II down but wouldn't say how or when Intel will do it.

Nathan Brookwood, an analyst at Dataquest in San Jose, Calif., said the new chip, which is being prepared for release late next year, could undercut similar offerings from Advanced Micro Devices, Inc. in Sunnyvale, Calif., and Cyrix Corp. in Richardson, Texas.

Brookwood said Intel will reduce the cost of its Pentium II by removing the Level 2 cache, an "optional" memory component that speeds up the rate at which data can be fed to the processor, thus improving its overall performance.

Intel's Level 2 cache comes from four discrete cache chips that it buys from third-party

vendors and packages with the Pentium II. It amounts to 512K of additional memory. Removing the cache chips could reduce manufacturing costs of a single processor from about \$100 to about \$80, Brookwood said.

Intel now sells its Pentium IIs to systems manufacturers starting at about \$350, Brookwood said. To penetrate the sub-\$1,000 PC market with them, it needs to sell them for about \$100, which would mean reducing their manufacturing costs by about half, he said.

When Intel switches to its advanced 0.25 micron production technology this year, its manufacturing costs will be reduced further, said Linley Gwennap, editor in chief of "The Microprocessor Report" newsletter. All this could be bad news for smaller chip makers such as AMD and Cyrix, Brookwood and Gwennap said. □

Niccolai writes for the IDG News Service in San Francisco.

Tape storage put to use

CONTINUED FROM PAGE 61

their analysis over spans of 20 quarters at a time, not just a small segment of data," Fernandez said.

Getting all that data on disk systems would break the bank. For example, Strategic Research Corp. in Santa Barbara, Calif., estimates that 10 years' worth of medical records maintained on disk would cost \$200,000 for the disk space alone, in addition to the price of the subsystem. That compares with prices of less than \$20,000 for newer tape systems today.

"High-accessibility tape is a solid choice for near-online storage applications such as imaging, document archive, video and CAD/CAM," said Michael Peterson, president of Strategic Research, in a recent report.

According to International Data Corp. in Framingham, Mass., Storage Technology Corp. has improved high-end 36-track performance with faster controllers, libraries and improved tape-handling techniques. It also is planning support for Fibre Channel interconnects, which is important for users beginning to build sepa-

rate, high-speed storage networks outside the corporate network.

And IBM's new Magstar MP 3575 Tape Libraries promise 2.2M byte/sec. response times for native data or 6.6M byte/sec. for compressed data. The midrange tape libraries are targeted at mixed server — Unix and Windows NT — environments in the data center.

Freeman Associates, Inc. in Santa Barbara, Calif., says the market for tape libraries is growing 26% annually.

That's because open systems servers are requiring tape resources as much as mainframes have over the years.

At Insurance Services Offices, with up to 70 new servers in the data center, Fernandez is using 9714 StorageTek libraries for those applications.

Fernandez also is placing smaller 9133 tape systems into departments for smaller workloads and to make sure the data gets moved to the silos for enterprise availability. □

How Clarify helps this man stay on top of payday for 22 million people.

Howard Koenig, Corporate VP of Operations & Client Services, ADP

ADP is the largest payroll processor in the world. Each year customer service reps field some 70 million calls. Leading the company's world-class service initiative is customer champion Howard Koenig. "The only thing we do is service. It's critical to the bottom line. Our focus on serving clients really made Clarify a perfect strategic fit for our company. They came to us and said, 'Let us show you how we can enhance ADP's service.' Other companies came at us from a pure sales angle. We didn't get that sense from Clarify. We got convinced they would partner with us to make us successful. And they did. Faster than we thought possible. Now we're using Clarify globally to gain a competitive edge. Clarify is the heart of our business. Literally."


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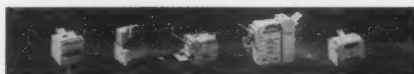


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NEW PRODUCTS

HEWLETT-PACKARD CO. has announced the HP Colorado 5G-byte, a desktop tape drive that uses HP 5G-byte media.

The Palo Alto, Calif., company, said the Travan-based drive can back up 3G bytes of data in less than 60 minutes. It is available in two versions: an internal integrated electronics drive and an external parallel-port version designed for lap-

tops and sharing among PCs.

Windows-based Colorado Backup software from Computer Associates International, Inc. also is included.

Internal drives cost \$199, and external drives cost \$249.

Hewlett-Packard
(650) 857-1501
www.hp.com

MYLEX CORP. has announced AutoNet, a network server engine for "thin" file servers and network-attached storage servers.

According to officials at the Fremont, Calif., company, the engine allows plug-and-play connection of SCSI peripherals into a LAN. Users can install the 3.5-in. product directly into existing

storage enclosures to create file servers from what were previously only peripherals.

It includes RISC processing, 10/100M bit/sec. Ethernet connectivity and Ultra-SCSI interfaces. It also is operating system independent.

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EVERYTHING'S POSSIBLE

Bull

PLASMON DATA, INC. has announced the D-Series CD-R libraries. These are 120- to 480-slot libraries for data archiving to long-life CD-Recordable discs.

According to the Minneapolis company, the libraries include two CD-R drives for recording and either two or four CD-ROM drives.

The libraries use a double picker mechanism that holds two disks simultaneously, allowing CDs to be exchanged at the drive within three seconds. The company said most major manufacturers of CD library software, including Smart Storage, Inc., plan to support the D-Series.

Pricing starts at \$11,600 for a 120-slot, two-CD-R, two-CD-ROM configuration.

Plasmon Data
(612) 946-4100
www.plasmon.com

STORAGE DIMENSIONS has announced RAIDPro LC, a server-independent, external RAID storage enclosure.

According to the Milpitas, Calif., company, the system was designed to work with entry-level network servers from manufacturers such as Compaq Computer Corp., IBM and Hewlett-Packard Co. Users can start with three 4.3G-byte disk drives and scale up to six drives for a total of 21.5G bytes per enclosure. The system supports RAID levels 0 through 5.

A system with three 4.3G-byte drives costs \$4,990.

Storage Dimensions
(408) 954-0710
www.storagedimensions.com

INTERGRAPH CORP. has announced the Evolution, a large-format desktop scanner that users can upgrade.

According to the Huntsville, Ala., company, the 400-dpi Evolution4 can be upgraded to an 800-dpi Evolution8 with a software password given by the company. No additional hardware or software installations are necessary.

The 400-dpi version is for applications in architecture, mechanical design and document management.

The 800-dpi version is for geographic information system applications and mapping. The Evolution can simultaneously scan and threshold a document in 15 seconds.

The Evolution4 costs \$9,900, and the key to upgrade costs \$6,000. It costs \$14,900 to purchase an Evolution8 outright.

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Managing

From SAP to NUT

What's the scoop on SAP implementations? SAP promises savings and efficiencies with its enterprisewide software, but customers also cite frustrations — from time and cost overruns to the difficulties of changing business processes to accommodate its demands

Dan, manager of employee support systems at a Fortune 500 company, was two hours away from proposing to senior management that they pull the plug on an enterprisewide SAP project when a senior technical professional called Dan to his desk.

"His PC had just flipped out and started rebooting. When it came up, every Windows icon label was in German," Dan says. Dan was appalled

at the sight of an application modifying an operating system. The SAP guys were "way into the blood and guts of Windows, and I didn't want to go there," Dan says.

He attached a screen shot of the new Windows interface to his presentation to management and got what he wanted: permission to bail out. Thus ended a long string of problems, including three weeks during which five SAP-savvy consultants tried to configure SAP to handle the company's new benefits plan. "They couldn't make it happen," Dan says. "SAP is wonderfully integrated, but if you aren't willing to bend your business to SAP's model, the results aren't pretty."

Reports abound on the successes of SAP customers — the savings realized and efficiencies

achieved once the mammoth enterprise management system has been implemented.

But it isn't all beer and skittles. Jim Johnson, chairman of The Standish Group International, Inc., a research advisory company in Dennis, Mass., estimates that 90% of SAP projects run late. "Most people underestimate the time and cost," he says. "If you estimated realistically, the numbers would be so staggering that you might never start." Vinnie Mirchandani, research director at Gartner Group, Inc. in Stamford, Conn., adds, "They end up implementing a few key modules, but it's a far cry from the vision they have painted."

Critics say the complexity and rigidity of SAP's R/3 software often cause project delays and failures. Problems arise when the company has to adapt to R/3's way of doing business, rather than the other way around. When the real-life business processes don't map well with SAP's model of business processes, trouble looms.

FLEXIBILITY AND COMPLEXITY

Looked at one way, SAP's 8,000 configuration tables give it unparalleled flexibility. Information technology professionals define business processes by filling in blanks and setting switches that model the flow of materials, information and money through the company. If they get it right, virtually everything of interest to the enterprise is kept up to date in real time.

But implementers rarely get it right the first time. Jayaram Bhat, vice president of marketing at Mercury Interactive, Inc., a Sunnyvale, Calif., vendor of SAP testing tools, tells of a company

running a test simulating 220 concurrent users. Under that load, certain screens took two to five minutes to appear. Changing some values in a configuration table slashed the response time to five seconds. But finding the parameters to change was a matter of trial and error, done at considerable cost.

SAP gives new meaning to the eternal trade-off between flexibility and complexity. Some find the table-tweaking required intolerably demanding. Companies organized along functional or divisional lines must reinvent themselves to fit SAP's hierarchical process orientation or pay a heavy price — much of it in consulting fees.

Dan found it impossible to model his company's organizational structure in SAP. "Our company has lots of many-to-many relationships, and SAP's model is very hierarchical, top to bottom," he says.

But Ann Senn, the Minneapolis-based Deloitte & Touche partner in charge of a gigantic SAP implementation at Owens Corning, the Toledo, Ohio-based maker of building supplies, objects to charges that SAP is overly hierarchical. "You need to define the divisions and the manufacturing facilities, warehouses, distribution sites and em-

MIT's James Bruce blames an expected two-year delay in the school's SAP project on a lack of clearly understood business processes. "That's the problem in a homegrown environment. Everybody knows their own job . . . but nobody understands the whole process."



employees associated with them," she says. Without defining those things, it's impossible to establish the work and information flows that let SAP perform, Senn says.

Not everyone buys that argument. Jerry Gregoire, chief information officer at Dell Computer Corp. in Austin, Texas, says, "In order to get SAP running, either you modify your business processes or you take the time to get all the parameters set the way you need them to be." A planned enterprisewide implementation at Dell has stalled with just one module in use. Anticipating a three-year implementation project, Gregoire realized that Dell's business would change too many times in that period to make SAP a good choice, he says.

SAP AND PROCESSES

Some users say no matter how much flexibility SAP offers, it all disappears once the system is in use.

"Making changes is a big deal, and you have to be extremely careful," says James Bruce, vice president of information systems at MIT in Cambridge, Mass. "If you've got a thousand people who are authorized to do something and you

want to change that process, it may take an hour to change the authorization on each of them, plus changing all the rules in the system."

One SAP customer who disagrees is Ben Wee, a partner at Benchmarking Associates, a research and development consulting firm in Cambridge, Mass. He was CIO at Computervision, a CAD/CAM company in Bedford, Mass., when management decided to eliminate the company's Prime minicomputer line, three months after the SAP system went live.

"Three of our IT staff had been trained in configuring SAP. Over one weekend they reconfigured our production systems to eliminate the manufacturing and hardware portion of the business," Wee says.

MIT's SAP project began in 1994. SAP has been "the institutional system of record" since September 1996, Bruce says. Individual schools and departments are coming online, with an expected rollout across the campus next June, two years later than projected.

Bruce blames much of the delay on a lack of clearly understood business processes. "That's the problem in a homegrown environment. Everybody knows their own job, and maybe the one be-

fore and after theirs, but nobody understands the whole process," he says.

CULTURAL CHANGE

Changing a business process to suit SAP can affect an organization's culture. At MIT, it took three months to agree on how purchase orders would be handled, Bruce says. "Everyone's concern was that a person might see a purchase order that they thought frivolous and make an issue of it. Or they might see a purchase that troubled them from their moral frame of reference and decide to make a big thing of it," he says. So far, Bruce says, none of the feared results has occurred.

The way people interact as they work changed radically at Elf Atochem NA, a chemical manufacturer in Philadelphia. Ben Vettese, director of SAP applications, calls that a plus. Under the legacy system, each transaction was handed off from one department to the next, with each recipient checking the work of the previous one, resulting in considerable redundant labor.

"SAP helps eliminate that because of its integration and real-time attributes," Vettese says. SAP's master resource planning module has "changed the way we handle our entire supply chain and how we do customer service," he says.

"In SAP, the customer calls in an order, and we do an inventory check. We don't have to call the plant anymore to see what the inventory position is, or what the production schedule is. We already have that information. It's simplified business for us," Vettese says.

Firms that place high value on local autonomy shouldn't try to run in an integrated fashion

"if all they care about at headquarters is how much income each unit turned in this quarter," Wee says. But, other companies "believe that the only way they can remain competitive is to adopt best practices throughout the enterprise," he says.

Elf Atochem, the result of a 1990 three-business merger, falls into the latter category. Massive re-engineering was needed, Vettese says, and SAP was the means to bring that about. "If you don't even have a vision of how you want to run your company, by its very nature, SAP will help you to re-engineer the way the organization works," he says. The implementation project began in August 1994 and is expected to finish late next year, a year ahead of original projections.

Bruce says that on some days, he's very happy with the SAP decision — and then there are other days. Once, he says, he told a facility meeting, "When you buy a new software package, if the vendor's world view is identical with your world view, then it's great. And to the extent that your world views differ, you get into trouble."

The real problem with a package as large and complex as SAP, Bruce adds, is that "you never know until you've got it completely implemented the degree to which your world views departed. It's those departures you find in the eleventh hour that bite." □

Williamson is a technical journalist in Warwick, Mass. Her E-mail address is mwilliamson@reporters.net.

SAP Resources Online

Looking for more information on SAP? Here are some helpful sites on the World Wide Web:

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SOURCES: IS MANAGER'S BOOKSHELF

ON THE WEB

Swatting the Y2K bug

Year 2000 Problem: Strategies and Solutions from the Fortune 100
 Edited by Leon Kappelman
 International Thomson Computer Press, Boston; 447 pages; \$44.99
 (paperback)

There are two big problems with this collection of year 2000-related articles and studies. They are the words "Reprinted from." Rather than writing a tightly structured how-to guide for solving the millennium bug, Kappelman has mostly reprinted articles from industry publications (including *Computerworld*) and by year 2000 consultants and practitioners. If you keep up with the year 2000 problem through trade publications, the World Wide Web or an electronic mailing list, much of this material will be old hat to you.

But if you're new to the issue or want another year 2000 resource guide, there are some good nuggets. They include in-depth looks at how year 2000 repairs affect databases and at the legal threats posed by the year 2000 problem. There are also useful case studies, as well as a CD-ROM with a business risk-assessment database, utilities to check PC BIOS chips for year 2000 flaws and sample survey letters to ask vendors about the year 2000 status of their products.

Bottom line: This can be a useful book, but for \$45, you're getting a lot of information that's already been published or that's available on the Web. — Robert L. Scheier



The Year 2000 Problem: Quantifying the Costs and Assessing the Consequences
 By Capers Jones
 Addison-Wesley, Reading, Mass.; 368 pages; \$29.95 (paperback)

Jones is a leading authority on the millennium problem and its costs. And his new book is a haven of statistics for readers who can't get enough of numbers — or the year 2000.

It's especially useful for IS executives whose CEOs just don't get it yet or don't understand all the ramifications of the problem. If your company has yet to begin its conversion work, Jones offers a rough calendar of what you should be doing beginning in January. (But in his introduction, he cautions that if you haven't starting finding and repairing all year 2000 instances by now, you may not make it by Jan. 1, 2000.)

Jones offers you more charts than you can find in a medical records department, and much of his data is useful, such as the following:
 ■ Staffing efforts for a company that began its work in 1995 vs. one that starts next year. Bottom line: The latter needs 60% more staff per month to make the deadline.

■ Impact of the problem for selected languages. (Cobol is about 36% of the problem; C is next, at 9%.)

■ U.S. repair costs by industry. (The military accounts for about 20%, at more than \$14.3 billion; finance is next, at \$4.95 billion.)

Jones also provides an extensive cost-analysis worksheet that you can use to analyze year 2000 costs for each year through 2001.

IS managers will find the book dry reading but nonetheless a handy reference that could help them determine how big, deep and costly their particular year 2000 problems are. — Rick Saia



Is your help desk feeling a bit frustrated with bone-headed users who lack technical smarts and common sense?

Let them get some laughs off the World Wide Web at TechTales (www.techtales.com), which presents some text and audio recreations of hilarious technical support calls. The tales are gathered from leading computer hardware, software and online companies by CBS Radio technology reporter Fred Fishkin. Illustrator Mike Scherfen spiffs up the site with some cartoons.



Some stories:

A TRUE VOICE MODEM

USER: Your software has done something really weird to my computer!

DESK: May I ask what that is, sir?

USER: Well, every time I try to use it to dial out with my modem, I hear the computer speaking at me and, well, I am starting to worry about my sanity.

DESK: Well, sir, do you hear the modem actually dial?

USER: Oh, yes, but then there is this muffled female voice.

DESK: And what does this voice say to you, sir?

USER: "The number you have dialed is not in service. Please hang up and try your call again."

SURFIN' WITHOUT THE 'BOARD (OR BAUD)

I used to work Internet support for an Internet service provider. One day we got a call from a customer who had purchased an account and wanted help setting it up:

US: Support, can I help you?

HIM: Hi, I need help getting my access to work.

US: OK, what type of modem do you have?

HIM: Modem? What's that?

US: It's the box that connects to your phone line.

HIM: Nope, I don't have one of those.

At this point, we probably should have given up in disgust, but no. Having established that he needed to buy a modem before he could go online, we tried to be helpful.

US: Why don't you give us a call when you've bought one, and we'll talk you through connecting it to your computer.

HIM: Computer? I need a computer?

I think he thought the 'net came through the TV or something.

THE RIGHT CLICK

We were supporting a PC application for a client who was used to using Macintoshes.

While trying to talk him through looking at the "My Computer" properties on his Windows 95 machine, our man said, "Highlight the My Computer icon, and click the right mouse button." However, that didn't seem to bring up the window we expected.

After several minutes of frustration on both ends, our man asked, "You are clicking the right mouse button, aren't you?"

To which, the even more frustrated Macintosh-using client asked, "Is there a wrong mouse button?"

Turnover of chief information officers among America's largest corporations has gone from bad to disastrous. In two years, it's shot up from 24% to 40%.

PAUL A. STRASSMANN

Last year, I wrote about the dangers of CIO turnover [CW, June 10, 1996]. I matched names on

THE PRICE OF UNCERTAIN LEADERSHIP



1994 and 1995 CIO mailing lists. After counting the dropouts, I calculated a one-year turnover rate of 24%. That indicated an average on-the-job CIO tenure expectancy of 30 months. It was an unacceptable turnover rate. It would force American IS organizations to devote most of their attention to patching up failing operations or satisfying pressing needs through costly improvisations.

I just obtained the updated mailing list. This time I was able to compare the respective 1996 and 1997 CIO names for the 300 largest U.S. corporations. To my shock, I found that the attrition rate of CIOs has accelerated. This year, 103 companies have appointed new CIOs. The departures from the list include several prominent people who over the years have received CIO leadership awards and other accolades. Only 152 named CIOs remained in their jobs during the past year. That means we have experienced a staggering 40% turnover rate.

But that's not all. That rate is understated, because it accounts for only the 255 companies that made the top 300 list both years. What about the other 45 companies?

Some companies that appeared on the 1996 list weren't among the top 300 companies this year. Others didn't claim a CIO last year but listed one this year. Still others failed to designate their top

IT position last year. All that suggests turmoil in IS, or at least a need for change in IT leadership, that's greater than is fully accountable by name matching.

WHY THE ATTRITION RATE?

One can endlessly speculate about why a CIO lost or gained a position: personality clashes, personal failures, etc. But the 40% turnover rate suggests something deeper is at work.

The latest rapid departures of corporate IT leaders isn't a random and temporary happening such as sunspots or sudden shifts in ocean currents. It's the end of an era of abdication of responsibility for information management by top corporate executives. It signals the end of a 40-year epoch during which technology prevailed over economics.

The turnover and turmoil you see today marks the beginning of a painful phase, after which the dominance of economics over technology and the need to integrate IT into the business mainstream will finally happen.

We are dealing here with a major shift in the business model and power structure.

Uncertain leadership may encourage IT professionals to become even more short-term-oriented than before. One can recognize that trend in how companies adopt, customize and maintain packaged

systems solutions without giving much thought to the long-term consequences for their IT budgets. Outsourcing also continues to offer the fastest relief from pain without necessarily curing the causes of defective management practices. I have reviewed enough year 2000 fix-it plans to observe that leadership uncertainty is forcing more and more IT shops into patching and working around their problems instead of fixing the data. That will push the costs of year 2000-induced maintenance into the next decade.

I don't believe that the short-term opportunists will prevail. When the planning and control of the full life-cycle costs of ownership of computers become a required corporate practice, only those who know how to deal with that will be asked to remain. Information technology isn't just an expense; it's an investment. Those who propose and install those investments will have to stay around while the promised benefits materialize. Top corporate management will finally see to it that responsibility and accountability reflect the same time line. □

Strassmann (www.strassmann.com) has shown, in his four books on the economics of information, that taking a long-range view of IT investments has the best chance of delivering profitable results.

Hairy issues for CIOs

Staffing and the year 2000 aren't the only issues bugging CIOs, says Gene Raphaelian, who runs Gartner Group, Inc.'s Information Technology Executive Program.

Raphaelian, a Gartner vice president based in San Jose, Calif., says lack of credibility,

alignment and "BHAGs" — big, hairy, audacious goals, such as implementing SAP, redesigning the network infrastructure or conducting business over the 'net — are also depriving CIOs of sleep.

Raphaelian says IS organizations are doing "a great job in tough circumstances, but given the changes and expectations, it's difficult to be credible." The problem, he says, isn't so much with CEOs, chief operating officers and chief financial officers as with other line managers and regular employees. CIOs have learned they have to communicate

with CEOs, but they and their IS staff haven't learned how to communicate with others. The situation is worsened by help desk snafus and other failures.

Alignment is still a problem for IS, in large part because it "still mostly has a technical culture" instead of a business culture.

Still, staffing and resolving the year 2000 problem are the top issues. "They are hurting most in the staffing area. There's a tremendous amount of frustration out there because they don't have the autonomy [from corporate HR control] to do what has to be done with retention and recruitment," he says. — Allan E. Alter

RAD-ical help

Looking for some new perspectives on rapid application delivery?

The Society for Information Management (SIM) has released a paper — Rapid Application Delivery — designed to help IS managers who must deliver successful business solutions.

"This publication goes beyond the methodology of RAD and provides valuable guidance for the IT executive and project manager," says Donna Steuber, director of IT Finance at Merck & Co. and leader of SIM's RAD Working Group.

The paper addresses and

explores RAD's success factors, including how to obtain and keep business involvement; education required for IT and the end user; and the use of project management.

For copies, call SIM at (312) 644-6610 or visit SIM's World Wide Web site at www.simnet.org. The paper costs \$75 for SIM members and \$200 for nonmembers.

COMPUTERWORLD

For a list of upcoming conferences, point your browser at www.computerworld.com and click on Event Search.

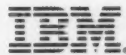
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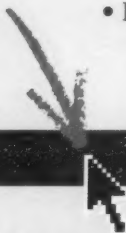
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Buyer's Guide

USER VIEW: It isn't just a browser war. The rivalry between Microsoft and Netscape extends into a variety of Internet-related sectors where, even if they don't dominate, the two companies are closely matched



Microsoft

VS.

Netscape



By Amy Malloy

Following the release of Internet Explorer 4.0, engineers from Microsoft Corp. dropped a 12-foot-tall "E" on Netscape Communications Corp.'s lawn. Netscape Navigator's revenge: Its engineers threw a blow-up of its Mozilla mascot on top of the "E." Naturally, each prank was accompanied by a note jabbing the competitor.



The antics were all in good fun, but they illustrate the bitter rivalry between the two vendors. The companies, their business partners and their users have formed opposing camps. Users want Netscape's and Microsoft's Internet technologies to interoperate, but Microsoft and Netscape have made it clear: Customers must pick a side of the fence. A *Computerworld* survey shows how 175 IT managers are lining up:

- Netscape so far has the browser advantage in terms of market share, but more than half of our respondents plan to go with Microsoft as their future browser vendor ["Explorer to slip past Navigator," CW, Sept. 29].
- Users are dissatisfied with their respective vendors' adoption of the rival's technologies, such as ActiveX and Java.
- The browser tends to determine the vendor choice on the back end. Users generally stick with the same vendor.
- In terms of products, Microsoft and Netscape match up well with slight variances.

The customer's decision goes beyond whether to use Netscape or Microsoft browser software. It includes which browser will be best supported on the user company's World Wide Web site and which products will be used to build and manage that Web site. Although the Netscape/Microsoft rivalry is strongest in the browser market, information technology managers must choose between the two in other sectors — such as Web server software and proxy servers — where Netscape and Microsoft rank among the market leaders.

The competition lately has taken on a more serious tone. The U.S. Department of Justice has asked a federal court to fine Microsoft \$1 million per day for anticompetitive behavior relating to how it markets its Internet Explorer, and Netscape has endorsed the government action.

Yet the very strategies that the Justice Department and Netscape complain about may be exactly what many IT managers, at least those who have chosen Internet Explorer, want. When *Computerworld* asked corporate managers to rate their Internet-related products from Microsoft and Netscape, two common themes emerged. Those who have chosen Internet Explorer did so because it's free or because it's so tightly integrated with other Microsoft products. It also appears that those managers who haven't committed to Explorer support the Justice Department action, as shown by a second *Computerworld* study showing that 59% of Windows 95 users said tightly tying Explorer to the operating system gives Microsoft an unfair competitive advantage (CW, Oct. 27).

The differences between the opinions of Explorer users and the population at large make it clear that while Microsoft has an advantage, many managers want choices.

Microsoft vs. Netscape, page 76

Microsoft vs. Netscape

CONTINUED FROM PAGE 75

Microsoft vs. Netscape: The browsers

Netscape is winning the browser war right now. Most of our respondents use Navigator, but by next year the majority of them said they will run Explorer.

In reviewing the comments by respondents to the Computerworld Information Management Group's survey of 175 IT managers, the reasons for Explorer's gain in market share became clear. The browser is free and integrated with Microsoft's operating system.

One-third of our respondents cited Explorer's low cost as the reason they chose Explorer for their companies. Another one-third of those respondents who use the Microsoft browser said Explorer's integration with the Windows 95 operating system or with Microsoft applications is the reason they use it.

Technology-wise, these two browsers are comparable. Our respondents ranked Microsoft's Explorer and Netscape's Navigator within tenths of a point of each other for overall confidence in their vendor's browser technology and strategy.

"The advantage that Microsoft has, at least as far as most businesses are concerned, is they are giving away the browser," says Matthew Williams, a senior product analyst at Progressive Strategies, Inc. in New York.

On the flip side, not everyone wants the browser integrated with their operating system, which leaves an opening for Netscape. Netscape's advantage is that it tends to sell products that have fewer bugs than Microsoft's products, says Patrick Carroll, a workstation and LAN coordinator at Simmons Co. in Atlanta. So he says he doesn't mind paying for Netscape's browser.

The competition isn't a bad thing. "We like Win 95. We like the Microsoft Office product, but I like competition in the marketplace. We get a better product as a result," says Marcia Murto, a Netscape user and director of IS research and development at PPD Pharmco, Inc., a contract drug research company in Morrisville, N.C.

RIVAL TECHNOLOGIES MATCH UP WELL

	Microsoft	Netscape
Users' confidence in their vendor's browser technology over the next year:	3.83	3.90
Users' confidence in their vendor's overall Internet and intranet technology and strategy over the next year:	3.84	3.93

Scale: 1 (not very confident) to 5 (very confident)

Microsoft vs. Netscape: On the server

Recognizing that the browser battle is part of a larger war, we also looked at the back end of the Internet/intranet market to find out what users have installed, how they feel about those technologies, and what they think of each vendor's overall strategy.

Analysts and users said the browser will most likely dictate what a customer uses on the back end. They tend to stick with the same vendor or go with a vendor that offers compatible technology. Users also find the technologies of the two vendors to be on par with each other.

Depending on who you talk to, you'll hear that Microsoft and Netscape combined own 90% of the browser market. The back end — Web authoring tools, Web server software, proxy servers and commerce servers — is a different story. Other vendors populate that market.

"I don't see it as strictly a race between Microsoft and Netscape," says Tim Sloane, an Internet analyst at Aberdeen Group, Inc. in Boston, referring to the browser war.

He says the battle is between the Microsoft Distributed Component Object (DCOM) and ActiveX pages and the Internet object computing environment, the combined use of Java and Object Request Broker (ORB), which is advocated by Netscape, IBM, Sun Microsystems, Inc. and Oracle Corp. DCOM is Microsoft's technology for distributed objects that allows objects to communicate over the network. ORB is an object-oriented system for managing message traffic between applications and platforms.

Those are the environments in which users will create Web sites. To develop and maintain a Web site, users will need Web authoring tools. That's one area in which Microsoft and Netscape don't compete. According to our survey, 43% of the respondents use Microsoft Web authoring tools, while only 6% rely on Netscape. Netscape isn't actively pursuing this part of the market. The vendor has partnerships with some third-party vendors, but Web authoring isn't one of Netscape's prime focuses.

Not all Netscape users like this gap in Netscape's Internet offerings. Carroll says he would like to see Netscape offer more in the way of Web authoring tools.

Microsoft, on the other hand, invested in this part of the market by purchasing what is now FrontPage, but the product doesn't own the market. "I would say the biggest problem is that it is very middle of the road," Sloane says.

Microsoft also offers a broad range of application and Web development tools and languages. A quarter of the Computerworld poll respondents use tools from other vendors in the market.

In our survey, respondents gave Microsoft a rating of 4.03 for Web site development during the next year. The ratings are based on a 1 to 5 confidence scale, in which 1 is lowest and 5 is highest. Netscape rates about a half a point lower in this area.

Whichever tools users opt to use, it is important that their Web site be compatible with both browsers, Williams says. He advises going with standards and keeping the environment open.

Along with authoring tools, users need Web server software. Sloane says each vendor comes to the table with unique Web server software benefits. Microsoft has more developers to leverage its Web server, he says.

Netscape's technology comes with a Web server, a mail server and a news server, which can be integrated to provide groupware open solutions, Sloane says.

In our survey, a higher percentage of users employ Microsoft's Web server, with Netscape and other vendors matching up fairly evenly. Several respondents mentioned using the same vendor for Web server software that they use for the browser.

Some sites are involved in electronic commerce, but it's early in the commerce server game. Only 20% of our respondents are using one. If he needed a com-

STRENGTHS AND WEAKNESSES

Microsoft was rated a bit higher in Web development and overall cost areas, but Netscape provides slightly better security and electronic commerce. Users want both vendors to adopt the other's technology.

	Microsoft	Netscape
ActiveX	4.25	2.93
Java	3.17	4.17
Web site development	4.03	3.61
Security	3.29	3.69
Electronic commerce	3.64	3.80
Cost of ownership	3.94	3.47

Scale: 1 (not very confident) to 5 (very confident)

merce server, Carroll says he would choose Netscape's commerce server because he uses the Netscape browser.

Williams says it's easier to port existing applications to the Web using Microsoft's commerce server, called Microsoft Transaction Server. It doesn't seem as easy to do yet with the Netscape offering, Williams says.

Proxy servers, a type of firewall, are also part of the back end. Most of our respondents don't use one currently.

Sloane says that he thinks Netscape has the advantage in the proxy server market, but from a marketing, not a technical, standpoint. Netscape's relationships with Internet service providers and telecommunications companies places it in an ideal position for taking the lead in outsourcing, Sloane explains. Sloane sees Netscape's ties to Internet service providers and telecommunications companies as a very strategic move on its part. It makes it much easier for Netscape users to outsource, he says.

Proxy servers are only one means of security offered by these vendors. Users mention Netscape's overall security as one of the vendor's appeals. In our survey, Netscape rated higher for security than Microsoft.

The security features accompanying Netscape's browser are better, according to Murto. Part of what she disliked about Microsoft was its security offerings, she says.

Netscape's security model is excellent for its environment and for controlling access from the Internet, according to Tim Sloane, an Internet analyst at Aberdeen Group, Inc. in Boston. Although it is based on open standards, he says it's unique to Netscape.

Microsoft's security isn't adequate for his business, which is getting ready to do online banking, says Dion Hargreaves, a network manager at Central National Bank in Junction City, Kan.

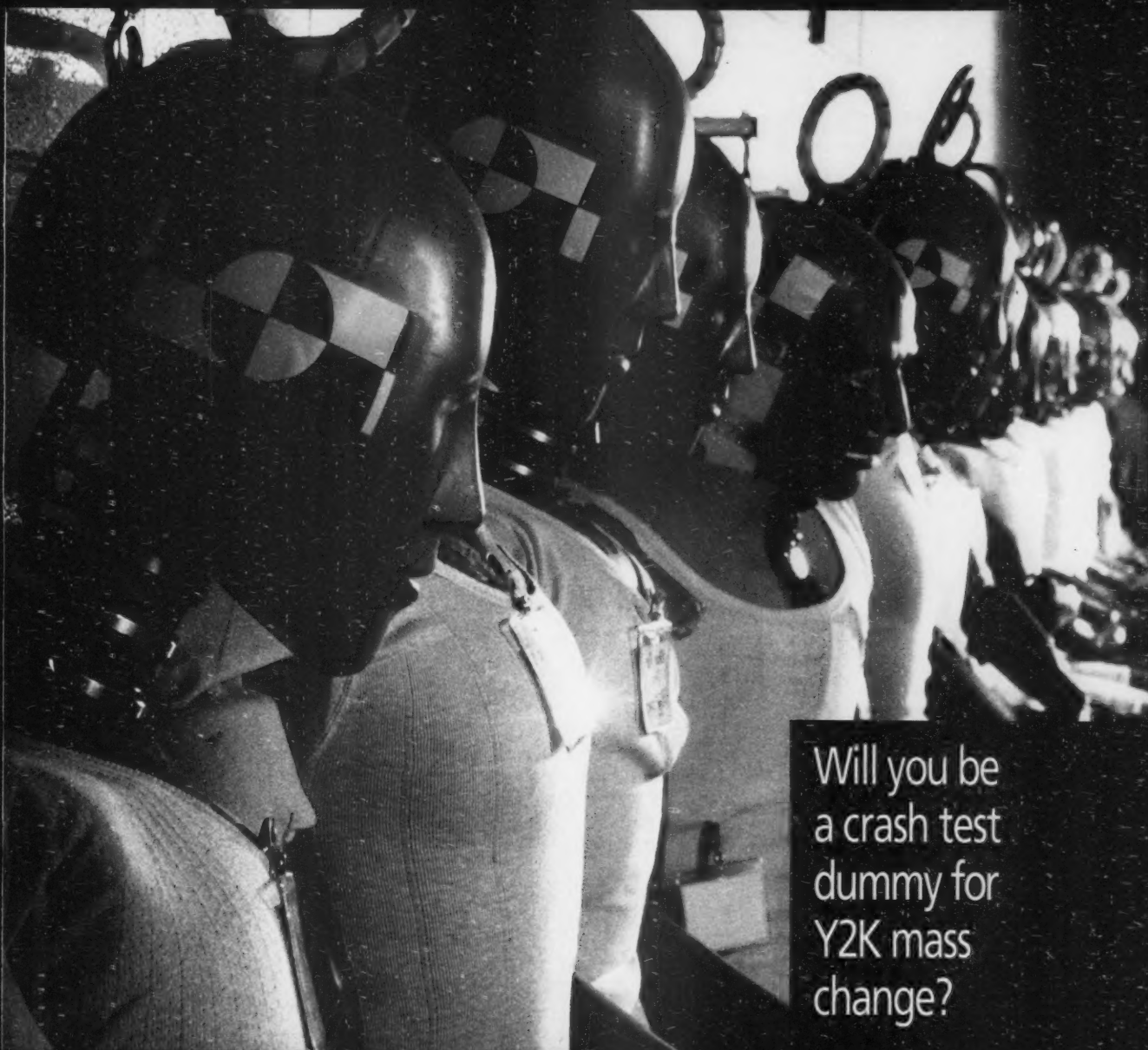
Microsoft vs. Netscape: ActiveX and Java

Users also said they are concerned that neither vendor supports both ActiveX and Java in the same fashion. You get users from both camps decrying their vendor's lack of compliance with the rival vendor's technology.

"I would like to see them have better support for ActiveX," says Netscape user Carroll.

Because his company already uses ActiveX to develop windows applications, William Manring, a computer scientist at Toshoh SMD, Inc. in Grove City, Ohio, can leverage the ActiveX expertise already in place within his organization. That appeals to him, he says. □

Malloy is Computerworld's associate editor, Buyer's Guide.



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No clear reason to shift to COREL

By Chris DeVoney

Improvements in the WordPerfect Suite make upgrades worthwhile, but they won't steal users from rivals

Feature for feature, the new version of Corel Corp.'s WordPerfect Suite Professional 8 ranks well with the other major office suites. The Professional version, released two months after Corel shipped the basic WordPerfect Suite 8, targets the corporate desktop user. Improvements in the WordPerfect word processor and Paradox database, better uniformity in the individual programs' user interface and strong Internet connectivity among the key programs in this suite make this version a worthwhile upgrade if you use a previous version of WordPerfect.

I reviewed the other two major office suites, Microsoft Corp.'s Office 97 and Lotus Development Corp.'s SmartSuite 97, several months ago [CW, June 7]. I applied the same criteria used in the Microsoft and Lotus comparison to WordPerfect, focusing on corporate issues such as deployment and workgroup collaboration.

Feature set (A-)

Of the three suites, WordPerfect offers the most feature-rich suite, but it almost borders on burdensome. Corel's "shovelware" approach of heaping programs and features into the suite rewards the user with the most comprehensive product of the three suites but dumps a

450M-byte disk footprint on a server and up to 210M bytes on a workstation.

Going beyond the standard fare, Corel tops the other suites by including the Time Line project manager (acquired from Symantec Corp.), the Web.SiteBuilder program (comparable to Microsoft's FrontPage), Netscape Communicator 4 and the Barista Java tool to publish complex World Wide Web pages without complicated programming.

Deployment (B)

Like the other suites, the WordPerfect package is a decent citizen for corporate deployment, although the installers have quirks. The network installer places files on the server for shared use, distributes them to individual PCs, or both. Unfortunately, the workstation installer takes an all-or-almost-nothing attitude and doesn't allow you to copy the core files to the local hard disk and leave low-usage files such as templates on the server.

Corel provides some scripts and tools to help automate the rollout or update of the suite throughout an organization. But Corel doesn't provide the requisite package definition files for push distribution systems such as Microsoft System Management Server.

When installing the files on an NT Server, the network installer demands that it write to the server's

REVIEW ► Corel WordPerfect Suite Professional 8



COREL CORP.
Ottawa, Ontario
(800) 772-6735,
(613) 728-3733
www.corel.com

Netlogon shared resource, an ultimatum that no other installer makes. The documentation doesn't say how to change Netlogon's permissions; the only reference is found at the Corel Web site. And after insisting on this writable access, the installer commits an absurd faux pas by giving an error message rather than automatically creating the directory that holds the installation's shared files.

Intranet/Internet publishing (A)

The WordPerfect suite makes a better link to the intranet or Internet than SmartSuite or Office. The major applications, WordPerfect, Quattro Pro, Time Line and Presentation, can edit and "publish" to the Web. Time Line also can post all its visual project results to an intranet. Paradox also provides tools to publish data statically or dynamically to the Web.

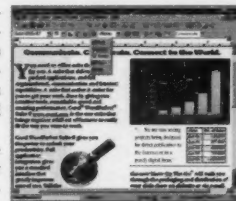
Additionally, Web.SiteBuilder provides a rapid development environment complete with templates for editing Hypertext Markup Language pages, embedded images and Java applets, tracking links and building small to midsize intranet or Internet sites.

Workgroup collaboration (B-)

When projects draw from a variety of people and resources, Corel offers its own approach to collaboration. WordPerfect provides its own versioning control of documents, which covers the major document-producing applications, and allows others to embed comments into any document.

But no "wrapper" function is provided to allow a compound document that uses files from several programs to be tracked as one item.

Also, the support for versioning isn't installed in the default setup.



Enterprise computing (B-)

As an enterprise-computing candidate, the suite fits adequately. Again, word processing documents can be exchanged across the corporation via electronic mail, the major applications can tap the corporate databases, and CorelCentral provides shared calendar and telephone book facilities, although Central isn't suited for use with a corporatewide calendar or telephone book containing thousands of records.

Third-party support (B-)

On the whole, the suite's outside support can be rated as "good."

The WordPerfect word processor drives the suite's popularity; the other programs aren't as popular.

And the suite isn't as popular as Microsoft Office, which has far more product and support providers. □

DeVoney is a reviewer in Seattle. He can be reached at chrisd@cycbercritic.com.

	WordPerfect 8	Lotus SmartSuite 97*	Microsoft Office 97*
Feature set	A-	B	A-
Deployment	B	B-	A-
Intranet publishing	A	A-	A-
Workgroup collaboration	B-	B	A-
Enterprise computing	B-	B+	B-
Third-party support	B-	B-	A
Overall	B	B	A-

*From Computerworld, June 7

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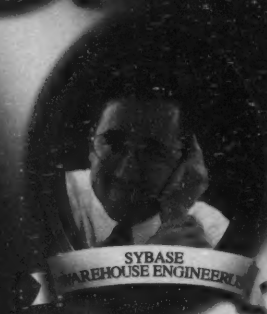
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S Y B A S E . C O . M

In Depth

BOOK EXCERPT

WANTED: Brilliance and Attitude

Computerworld readers have long been familiar with columnist Esther Dyson's incisive analyses and predictions. Now the non-information technology public is catching on. Dyson, perhaps best known for her "Release 1.0" newsletter, has caught the fancy of *Vanity Fair*, *Newsweek* and *BusinessWeek*.

In this excerpt from her new book, *Release 2.0: A Design for Living in the Digital Age*, Dyson explores the attributes that will make job-seekers attractive to prospective employers in a fully networked market.

SO, YOU'RE STILL looking for that job. As employers check you out on the Internet, the efficient market for employment will lead to a widening gap between star employees and adequate ones — or worse. But the skills needed are not just creative brilliance or intelligence; they also include attitude. To the extent that workers can find a culture or community that suits them, attitudes may get better. (Or at least all the complainers will deserve each other!) As you develop or market your skills, there are four broad attributes that will be especially valuable.

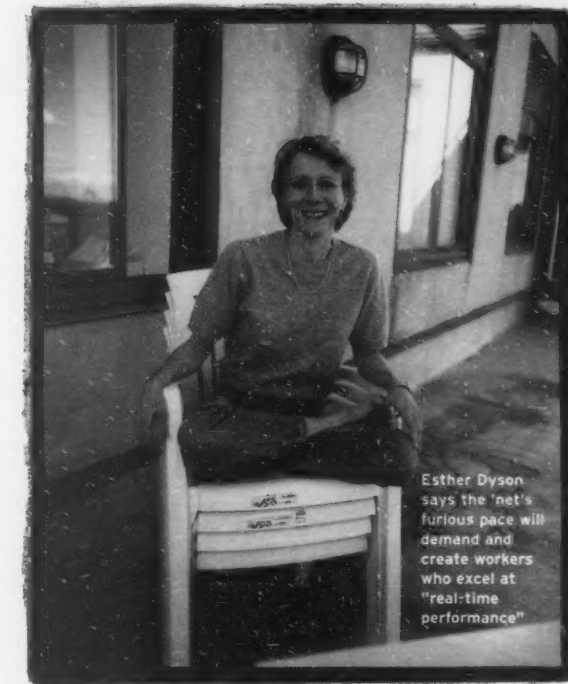
CREATIVITY AND INTELLIGENCE

The fundamental talent is creativity — whether artistic or intellectual. As the world becomes faster-moving, companies will stay ahead not with proprietary technology, but with a constant flow of new technology and

ideas. Employees will be valued for what they can produce, not for what they have produced.

Most successful will be those who can design innovations to help the company get or stay ahead. The major business of business will be design — of new products, new processes, even new business models. It will be much harder for any company to gain a persistent competitive advantage other than with a strong company culture/community that both perpetuates and renews itself through new design.

Employees will increasingly need to be good at thinking, rather than blindly following routine. Routines can be automated or at least farmed out to specialist firms; those specialists, meanwhile, need to implement familiar tasks efficiently, but their core value is — you guessed it! — coming up with new ways of doing the old tasks better.



Esther Dyson says the 'net's furious pace will demand and create workers who excel at "real-time performance"

Those who are good at doing what they're told will be able to survive, but they won't excel in the increasingly competitive marketplace. Nonetheless, support people will be valued to the extent that they can adjust to change while maintaining the healthy corporate culture. They will im-

plement the crazy ideas of the dreamers and risk-takers. Even as the market becomes more efficient and the stars can move around more easily, companies and co-workers will come to value loyalty and comfort as an antidote to this friction-free world.

Wanted, page 82

WANTED: Brilliance and Attitude

CONTINUED FROM PAGE 81

REAL-TIME PERFORMANCE

The second key attribute is a performance personality, for want of a better phrase. People who can think quickly will prevail. Can you respond quickly (rather than think slowly)? In the age of the 'net, there will be less time to think, more need for quick response — whether a speedy reaction to electronic mail or a real-time interaction in (electronic) print or a videoconference. Real-time performance will outrank careful production. Editors and writers will continue to be necessary, but more valuable will be people who can write and think in real time, participating in and moderating real-time online forums. Of course, these same capabilities are what "playing" on the 'net hones — just as soldiers, toy cars, dolls and Play-Doh prepared children for the tasks of the previous century. What people do for leisure, they will also do for pay. (Consider tennis pros, for another example.)

As the Internet's "local loops" become broadband, there will be more need for people who can perform the equivalent of online or telephone interaction in video — in short, remote customer service. The people who used to work in stores will now work online, but customers will expect more than a hand

I once asked an AT&T executive what he did as a manager, and I have always remembered his answer: "I absorb uncertainty."

wave and a snarled "Over there!" Highly trained people will interpret complex instructions or give advice to customers who prefer to deal with a person. Yes, I know things should become easier and easier to use, but people will still want customer service from people, not from expert systems. It's a lot more convincing to have a person tell you a particular sweater will go great with the skirt than to hear it from a machine. Who wants baby-care advice from a computer? Persuasion is still a personal art rather than a computer technique.

My favorite example of a real-time employee performance was by a quick-thinking Southwest Airlines stewardess, back in the days before the 'net when they were still called stewardesses. The doors of the aircraft had closed, most of us had found our seats, and she took up the microphone: "Hey y'all!" she drawled. "We got a little problem up here. We don't have the peanuts. Now

we can set right here for about 15 minutes, and catering promises we'll have those peanuts right away . . . but I can't guarantee it. Or, folks, we could leave right away without those peanuts. Now I'm just gonna take a little vote. . . ."

Before she could even finish, she was drowned out with shouts and cries: "Let's just go!" "Fergit the peanuts!" "As long as we got beer, who needs peanuts?" We left on schedule, and no one complained about the missing peanuts. We had a choice, and we had chosen.

SELF-MARKETING

Imagine a company as a physical object. The companies of the past were black boxes that produced products and had a small surface area, composed mostly of PR and investor-relations people, and perhaps a couple of outspoken top executives. Consumer companies had ads, but they rarely involved anyone from inside the company — with notable exceptions such as Perdue and his chickens, Lee Iacocca and Chrysler, and Richard Branson and his Virgin product du jour. Exceptions were service companies such as airlines, competing on the friendliness of their stewardesses, and at least some retailers competing on the helpfulness of their personnel. But most employees were focused internally, designing and building products or perhaps writing ads or documentation. The products and the advertising spoke for themselves.

In a service/information/'net world, all that changes. A company's surface area expands in relation to its volume; it's almost all membrane with very little contained inside. And if you remember the physics you took in high school, the smaller an object is, the greater its surface area is proportional to its volume.

The surface that a business exposes needs to be more than just posted information — even specific, customized information such as Federal Express' track-your-own package service. Companies will need to have real personality online — which means persons.

Accordingly, there will be a premium on people who can market themselves. In a world where competitive advantage comes either from new design or from the attention of people, those who succeed will be those who are good at getting their new designs or themselves noticed.

The person is the living face a company presents to the world. For example, take Jennifer Warf, who has run a Barbie Web site for some years. Other Barbie fans came upon the site, and pretty quickly it became an active center for discussions about Barbie, trading costumes and even dolls. The site eventually attracted attention from Mattel itself, and an enthusiastic Warf hinted that she might like a job with Mattel when she graduated from Indiana University. But instead of hiring her, Mattel's legal department wrote her a letter with warnings about copyright infringement. She has redone the site to remove all of Mattel's content; she is using photos of

her own dolls instead.

Unaffiliated with Mattel, she is now doing this as a labor of unrequited love. Of course, Mattel's version of the story focuses on its need to protect its image and its intellectual property, but it seems to me they have missed an opportunity.

MOST LIKELY TO SUCCEED

I once asked an Italian executive who worked for AT&T what he did as a manager, and I have always remembered his answer: "I absorb uncertainty." As routine is sucked out of our daily work lives, people who can create stability from chaos will be key. This man, Vittorio Cas-

want to be part of a community. What keeps employees as well as customers is the emotional intelligence described above — the presence of people they like to work for and with. All but the most solitary employees prefer to work with people whose company they enjoy and whose contributions they respect.

Indeed, a company is a community. A company's best strategy is to attract employees and then to get them to invest in the company's community — not just by paying them but by fostering an environment that lets them flourish. Great value is created by teams that work together effectively, whether as repair peo-



In a world where competitive advantage comes either from new design or from the attention of people, those who succeed will be those who are good at getting their new designs or themselves noticed.

soni, took the uncertainty out of his employees' lives so that they could go ahead and do their best. He did not tell them what to do so much as he provided balance in a rocking sea.

These kinds of personal qualities — management skill, leadership, judgment, collaborative skills, risk-taking, evenness of temperament — are now called emotional intelligence. As change becomes constant, leaders must have the flexibility and vision to handle it. It's the skill it takes to run a meeting effectively, whether in a conference room or over a network, internally or with partners and customers — but you have to do it on a global basis all over the long term. You have to fire people up and calm them down, resolve disputes, uncover the key points in a conflict or a strategy, make firm decisions. All these traits and capabilities inspire confidence and lead a company forward. These traits are the least definable — and their impact is the most visible.

WHAT MAKES COMPANIES APPEALING TO EMPLOYEES

When goods and machines are cheap and mass-produceable, people with the talents described above are valuable. What does it take to attract them? Other people. It's the other people in a company that will be a key factor in keeping employees. Even though employees will achieve greater freedom to move around because of the fluid job market, few people actually want to get up every morning and find out what jobs are available on the 'net. They want stability; they want friends; they want familiarity; they

ple sharing experiences with balky machines or creative types coming up with a new multimedia extravaganza.

That doesn't mean that all companies will become identical happy families. They will have distinct cultures — perhaps more distinct than now because people will be better able to find an environment that suits them, whether it's aggressive and sales-oriented, technical and reserved, formal or informal. But overall, companies with people enthusiastic about their work are likely to be the most successful.

Since both companies and employees will have more options, dissatisfied employees and employers are less likely to stick with an unhappy situation — a company community that doesn't really meet their needs. Now, to be productive, it is usually necessary to affiliate oneself with a large organization.

In the future, those who want freedom will be able to work on their own terms without sacrificing as much as they must today. People who aren't much fun to work with will be able to become more independent, operating as one-person bands and contracting out for services.

These two forces — independence and the need for affiliation with a community — often conflict. The way they are resolved will vary from person to person and company to company. □

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COMPUTERWORLD

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THE MAGAZINE FOR ELECTRONIC COMMERCE STRATEGISTS

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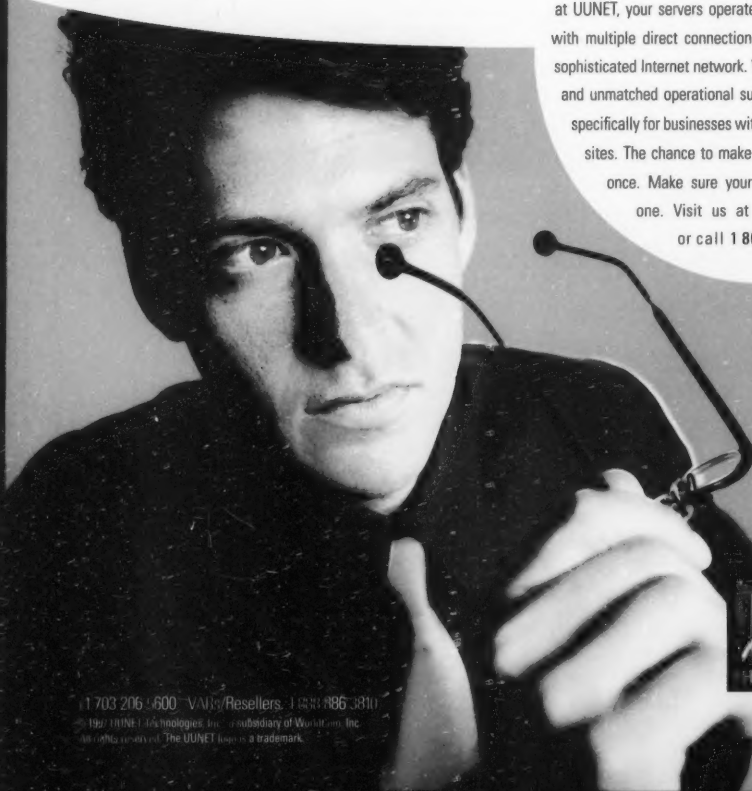
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EDITOR'S NOTE

Everything Old is New Again

Not so long ago, electronic commerce was an unspoiled frontier marked by new players, new buzzwords and altogether new concerns. Today, though, it's threatening to take on some awfully familiar attributes.

First, take a look at the emerging standards. The Internet has always had de facto standards such as TCP/IP,

come to fruition. Both standards face similar threats as in the "old" IT world — power-mongering, complexity and philosophical disagreement.

What looks promising for both these standards is that they're strongly driven by users. Perhaps that will keep the religious wars at bay (see stories pages 6 and 12).

Next, take a look at software buying on the Web.

of licensing, volume purchasing and centralized vs. decentralized decision-making (see story page 8). The outcome promises to radically change the sales channel.

And then there's Microsoft. The industry giant, which was not even at the table when Internet-based electronic commerce was first spawned, is muscling into markets such as online banking and automobile purchasing. Sound familiar?

So maybe a bit of the old world is creeping into the once pristine electronic commerce landscape. But just because these attributes look familiar doesn't mean we're going backward in time.

As the business world becomes more dependent on electronic commerce, some argue that successful companies may well be the ones that give their technical staff some clout and power. Not to mention, technically oriented companies may grab business advantages unheard of today. That could really rock the industry. (For more on this topic, see our column and forum at www.computerworld.com/emmerce, starting Nov. 17.)

It just goes to show you: You can't run from your problems. What's different this time is that they'll likely lead us down some new avenues.

Mary Brandel

MARY BRANDEL
mary_brandel@cw.com

Maybe a **BIT** of the old world is creeping into the once **PRISTINE EC LANDSCAPE**. But that doesn't mean we're going **BACKWARD** in time.

but industrywide standards that require cooperation and collaboration — these are just starting to emerge.

And emerge is the right word. It's yet to be seen whether two of these standards — Open Buying on the Internet and collaborative planning, forecasting and replenishment (CPFR) — will

Electronic software distribution is forecast to be a \$4.6 billion business by the year 2000, according to International Data Corp., but most big corporations are not buying software on the Web today. In terms of basic capabilities, the technology is there. The obstacles have to do with ingrained methods

emmerce COMPUTERWORLD

EDITOR

Alan Alper
alan_alper@cw.com

EXECUTIVE EDITOR

Mary Brandel
mary_brandel@cw.com

ART DIRECTOR

Mary Beth Welch
marybeth_welch@cw.com

ASST. MANAGING EDITOR

Kimberlee A. Smith
kim_smith@cw.com

CONTRIBUTING WRITERS

Rochelle Garner
Mark Halper
John R. Howe
John Verity

PRODUCTION DIRECTOR

Christopher P. Cuoco

DESKTOP PUBLISHING

COORDINATOR

Kim Pennett

COMPUTERWORLD EDITOR

Paul Gillin

COVER ART BY DANUTA JERACKA

Contents



COVER STORY

Simply Complex

8 Electronic software distribution shows how to make a complex process even more complex.

By Mark Halper

FEATURE

Vision Quest

12 CPFR could eliminate \$150 billion in consumer goods excess inventory, if it holds together as a standard.

By John Verity

INTERCHANGE

Don't Like EDI? Try OBI.

6 Neal Casteel, president of the Open Buying on the Internet Consortium, discusses the new vision for corporate procurement.

By Rochelle Garner



THE EXCHANGE

4 "Going, Going, Gone"

By John R. Howe

4 Commerce by Numbers

8 Commerce Pulse



THE Exchange

TRENDS, IDEAS AND ISSUES IN ELECTRONIC COMMERCE

COMMERCE BY NUMBERS

Business-to-consumer revenue will increase exponentially by 2000

Total Web users:

1996: 26M

2000: 85M

Percent who shop:

1996: 30%

2000: 60%

Number of transactions per month:

1996: 2

2000: 2.5

Total transaction revenue per year:

1996: \$42M

2000: \$8.4B

Source: Robertson, Stephens & Co.

Meanwhile, business-to-business EC expenditures will increase 38% by 2001

Total expenditures:

1997: \$8B

2001: \$11B

Percent of expenditures that are Internet-related:

1997: 12.5%

2001: 18%

Source: The ESI Group Ltd.

"Going, Going, Gone"

BY JOHN R. HOWE

Online auctions are hot right now. Just look at the Internet Auction List, a directory of auction-related Web sites. It currently lists 128 online auctions selling everything from collectibles to computer hardware, and the list is growing every day, according to list developer John Jackley.

These days, he is seeing a trend toward real estate and auto auctions. But the question on the business world's mind is how to apply the auction metaphor to suit its purposes. In some cases, business-to-business procurement might be the next frontier for auctions on the 'net, particularly for sales of overstocked goods.

Take a look at the momentum. Leading the pack of auction sites is OnSale, a Silicon Valley company that grossed \$30 million in 1996 auctioning refurbished and closeout computer equipment and consumer electronics.

A new competitor to OnSale is the Internet Shopping Network (ISN). ISN's First Auction, launched in June, moved more than \$100,000 of merchandise off the block in its first three days online.

Will the Internet's global reach, multiparty capability, distributed processing and computational speed inspire

businesses to auction their surplus online instead of contracting with intermediaries?

If American Airlines is any indication, the answer is "no." Last year, the airline tried auctioning 11 round-trip U.S. tickets and other travel products online, but it quit after a few rounds. "We found auctions are somewhat cumbersome to administer . . . and that they don't lend themselves to selling a lot of our product," American spokesman Tim Smith said.

Lufthansa Airlines recently had a very different experience with an auction of fares outbound from Germany. More than 100,000 people tried to access the company's server in Frankfurt as soon as its first ticket auction opened. "It was one of the greatest Internet fevers ever seen in Ger-

many," said Susana Clementin, Lufthansa's manager of new media technologies.

Lufthansa's bidders downloaded Java applets, which shifted the information load off-site while allowing users to interact with the auction 20 seconds behind real time.

Despite Lufthansa's "feverish" success, analysts doubt many businesses will rush to conduct their own auctions, even on overstocked products, given auctions' intrinsic demand for unique products that are hard to price and large flows of merchandise and bidders.

Jeffrey Mann, an analyst at Meta Group, Inc. in Stamford, Conn., dismissed the airline auctions as "something interesting to do on the Internet for a few months. I imagine that's what American

learned and what Lufthansa will find out."

"To the extent that an auction is well-defined and has a consistent flow, it can get built into a market," said Stan Dolberg, an analyst at Forrester Research, Inc. "If it's one company occasionally clearing out its store-room, that could not possibly have much of an impact on the market. That's more like



"As procurement systems get better, [they will] move into auction kinds of setups."

— JEFFREY MANN, META GROUP

the 'help wanted.' An intermediary site that is defined around an industry, or a segment of an industry, is much more likely to have the ability to supply the buyers."

Two examples of this are FairMarket, Inc. and FastParts, Inc. Both have set their sights on excess semiconductors and computer products. In both cases, buyers benefit because they get standard information on lot descriptions, asking prices and current offers, hopefully resulting in fairer prices. Sellers are able to get their stock online more quickly, thus ensuring that products don't go out of date.

FastParts claims its members are seeing an average recovery of five to 10 times more than through conventional liquidation channels.

Online auctions on the business-to-business procurement side are another significant trend to watch, Mann said. "I think you're going to see communities of shared interest going to electronic procurement systems," he said. "As procurement systems get better, [they will] move into auction kinds of setups."

Dolberg pointed to industries such as gas and electricity, where imperfections exist in the supply and demand

pattern. "The auction will be a vital part of how the goods actually flow through the pipeline and the grids."

An example is FERC/Oasis. As part of the federal government's deregulation of the power industry, private utilities are now required to make excess transmission capability available through a so-called Open Access Same Time Information System (Oasis), available online to qualified wholesale buyers.

"There's no auction in the sense of auctioning something to the highest bidder," said Bill Booth, chief of market oversight and information in the Federal Energy Regulatory Commission's Office of Electrical Power. "It's really a process whereby utilities may want to more fully utilize their capacity, and they discount off of that." When the number of people interested in using the capacity outnumber the available capacity, the utility will charge its maximum rate, "so it's kind of a strange auction," he said. "Basically what the system does allow is price negotiation."

Howe is principal writer at Clearwater Communications, an editorial services network in Cambridge, Mass.



■ FairMarket
(www.fairmarket.com)
■ FastParts
(www.fastparts.com)
■ FERC/Oasis (www.oasis.com)

■ Internet Auction List
(www.usaweb.com/auction.html)
■ ISN's First Auction
(www.auction.com)
■ OnSale (www.onsale.com)

CommercePULSE



Four-Hat Solution

IS THERE A doctor in the house? There may be, if you contract with Cambridge Technology Partners (CTP) for an electronic commerce project. This summer, CTP, a consulting firm in Cambridge, Mass., launched Co-RAD, a multidisciplinary service, to help Fortune 1,000 clients develop and deploy electronic commerce solutions. With the service, each client is assigned a consulting team whose members encompass four disciplines: creative, business, technical and cognitive.

Why cognitive? With traditional projects, end users are employees. They have no choice but to interact with whatever interface is designed. But with electronic commerce systems, end users are consumers or business partners who have a choice about whether they work with your system or click to something else. Thus, it's much more important to study human-computer interaction when designing the interface.

CTP is getting serious about the cognitive aspect. It has actually hired a "cognitive manager" who has a Ph.D. in psychology.

Fighting Fraud

WHEN CNET Direct, Inc. launched its BuyDirect.com (www.buydirect.com) electronic software distribution site last December, it quickly learned that no matter how many security checks you establish, someone will try to steal from you.

"People did not get tired of it," noted Bill Headapohl, executive vice president of electronic commerce at the San Francisco multimedia maverick. He once observed someone attempt to fraudulently buy a piece of software 40 times in a row, he said.

Many fraudsters steal software for fun or for the challenge. Their credo: "Hey, I see a \$10,000 piece of software, and I want to crack it," Headapohl said. That forced CNET to take most of its expensive software off the site.

He wouldn't say how much fraud was committed on BuyDirect.com early on but hinted it was in the 20% range.

Although fraud continues to haunt the company, CNET believes putting enough "curves in the road" will attenuate the risk. It is now looking at software wrappers — encrypted containers that users must unlock with secure keys to use the software.



INTERCHANGE PROCUREMENT

DON'T LIKE EDI?

BY ROCHELLE GARNER

There's a problem with the consumer model for buying goods over the Internet: It doesn't work for business. There's no standard way to authorize how much money which employees are allowed to spend. Or to get approval through the corporate purchasing hierarchy. Or even to cut purchase orders when an employee places an order directly with a supplier.

In June, American Express Co. and the Internet Purchasing Roundtable — a group of Fortune 500 companies and their key suppliers — did something about the problem. They released Version 1.0 of the Open Buying on the Internet (OBI) standard, which specifies the processes, formats, security and technical design for the buying and selling of "indirect material" over the Internet. That would be office furniture, computer and industrial supplies and electronic components — 80% of all corporate purchases.

As president of the OBI Consortium,

TRY OBI.

NEAL CASTEEL, PRESIDENT

OF THE OBI CONSORTIUM,

DISCUSSES THE NEW VISION

FOR CORPORATE PROCUREMENT

Neal Casteel helped formulate the OBI standard. And as manager of electronic commerce at National Semiconductor Corp. in Santa Clara, Calif., it's Casteel's job to promote electronic transactions with National Semiconductor's suppliers and customers around the world.

Rochelle Garner, a freelance writer in San Carlos, Calif., spoke recently with Casteel about corporate procurement and how OBI will affect large businesses.

Q: WHY HAVE YOU BEEN SO INVOLVED IN HELPING FORMULATE STANDARDS FOR BUSINESS-TO-BUSINESS COMMERCE?

A: We can determine that today it costs from \$150 to \$200 to generate a purchase order. EDI can cut that down dramatically. [But] it forces a tremendous amount of work and effort at the front end before people start to see any of the benefits. All of our major customers and suppliers have

EDI. But if you look at the smaller companies that we deal with for indirect materials — the products and services we buy through our internal Web catalog — most do not have EDI systems in place.

Q: WHY WORRY ABOUT SMALL SUPPLIERS?

A: Around six years ago, I started working with our purchasing organization for doing EDI with our suppliers. In most cases, we heard, "What's EDI?" We were able to pick out some of the top suppliers, but we found that mass volumes of those suppliers didn't have EDI programs and still may not. It's too costly, too difficult. There is a trade-off there, of course. How long does it take for you to sit down and key in an order?

We saw it as, if you can build the bridges for EDI, then it's a matter of individual maps for every customer.

Q: BUT THAT CAN BE DAUNTING IF YOU HAVE SEVERAL HUNDRED CUSTOMERS.

A: Sure it can. And guess what? They all do it differently. So while there are benefits, there are ongoing liabilities.

Q: IS THAT WHY YOU DECIDED THERE HAS TO BE SOMETHING BEYOND EDI?

A: Actually, National had dealt with this problem several years ago by bringing up a rudimentary, searchable catalog on an old VM-based mail system we had. Our purchasing organization had done this because the people there knew that EDI wouldn't be a solution for the small indirect suppliers.

Q: WHAT WAS THE OLD SYSTEM LIKE?

A: It had about 15 or 20 suppliers, with maybe 1,000 different things it could list. And since it was a dumb terminal, it was limited to an 80-character-wide screen. These were huge limitations considering that a major office supplier catalog will have 20,000 items in it. Even so, that system became very successful and very important to the company because it dramatically cut the time to process requisitions and authorization and because National didn't have to generate paper.

Q: IT WAS YOUR JOB TO REPLACE THIS WITH SOMETHING MORE UP-TO-DATE?

A: Yes. But with the new system, we had to build in safeguards. We had to build in processes that weren't there. We had to make sure we had a system robust enough for 1,500 users. It had to extend to every employee in the company. We brought up an enterprisewide system on our intranet, with all the catalogs from 35 different suppliers, listing about 100,000 items. We have 600 or 700 individuals using the system here. Today, employees go to our internal catalog, root around in it, find the stuff they are looking for, fill in the on-line order form, then send that form electronically to the supplier.

Q: WHAT IS THE DATABASE TECHNOLOGY?

A: Just straight ASCII text files. It's nothing significant, but it was part of the design process to solve that issue. We did find some inexpensive and elegant solutions that allowed us to take the underlying data we had and structure it to multiple minicatalogs. So, for example, we might take one supplier's catalog and break it into 60 little catalogs, organized by commodity. But we really do not have a database with this.

Q: WHAT DOES THIS RUN ON?

A: Our catalog runs on an AIX Web server with the Netscape Enterprise Server. It's a step in the right direction, but it's still short of where we're trying to go with OBI.

Q: HOW WOULD IT BE DIFFERENT WITH OBI?

A: In the future, we want to point our requisitioners to a purchasing Web site that lists all of the approved suppliers. That site then points them off to the suppliers' Web sites. And since we are looking at using digital certificates, the supplier will know to point that employee to the National-specific catalog... [and] what that employee is authorized to buy and spend.

On the consumer model, I'd be off at the supplier's site, push the button and boom — the supplier has an order. That doesn't work for a business-to-business environment because I still need to know

you just ordered. I need to know what will happen when the product comes in, what do I match it against, what will happen when I get an invoice and do I pay that.

But businesses don't just pay invoices willy-nilly. That's why the OBI architecture has defined a process in which a request will be sent back to the employee's purchasing organization rather than simply placing an order. And when that request is sent back, it goes through the necessary workflow for approval if it's needed, to add accounting information and to provide the company's own purchase order number. Then the purchasing organization sends the purchase order as an OBI object, which may be a file or an EDI-formatted order.

Q: REALISTICALLY, HOW SOON CAN A COMPANY EXPECT TO BUILD TO THIS?


A: Not very long, given that we have robust enough solutions from solutions providers. A handful of solutions providers have said they will support the OBI protocol. They include Connect, Inc., Intelisys, Actra [a joint venture between Netscape and General Electric Information Services], Elekom, Microsoft, Oracle and Open Market.

Q: HOW EXPENSIVE WILL THESE SYSTEMS BE?

A: We aren't looking at anything in the realm of a major enterprise solution. But we'll have to see what the market brings out.

Q: CAN A COMPANY THAT'S INTERESTED IN THIS GET A BLUEPRINT OF OBI?

A: The data is available at the OBI Consortium Web site. It's broken into six different sections. There's a white paper of what OBI and the Internet Purchasing Roundtable is all about, and it talks about the business process and business vision that led us to this standard. There's enough there for people to say, "Wow, we could probably use this as the basis for a specification, to develop our own or go to a solution provider."

 More information about OBI is available at the OBI Consortium Web site at www.supplyworks.com/obi.

COVER STORY ELECTRONIC SOFTWARE DISTRIBUTION

Simply Complex



ESD shows how to make a complex process even more complex

By Mark Halper

By many measures, Cisco Systems, Inc. is a hyperactive user of Internet technology. The fast-growing router company claims to have generated nearly 25% of its \$6 billion-plus 1997 revenue over the 'net. As a firm selling goods to an online world, Cisco practices what it preaches.

Yet when it comes to purchasing software for its own use, Cisco conducts business the old-fashioned way. It buys a disk containing a master copy of a program, copies the program as many times as terms and conditions permit and distributes those copies among employees. In stark contrast to its habits as an online salesman, Cisco does not generally purchase or receive software online.

Cisco's choice not to use electronic software distribution (ESD) mirrors that of many corporate information technology users. Despite the ready-to-wear nature of software in an electronic distribution world — its digital makeup suits it perfectly for electronic transport — most companies today have yet to start buying or accepting their software electronically.

"For a 'one of' purchase, electronic software distribution makes sense," said Scott McMahan, manager of information systems at Cisco. "But for a company like Cisco, we like to have a physical copy ourselves." McMahan said a physical copy assures him of a backup should files corrupt. Furthermore, with the ESD infrastructure in its infancy, many users are not yet confident that online software will arrive fully intact.

Certainly, ESD is alluring to corporate buyers, who are tantalized by the potential for instantaneous access to new releases, updates and patches. Many hope that electronically distributed software will be easier to track throughout their corporation — a development that would ease software management headaches. ESD also portends

lower prices because packaging and transportation costs decrease, although new third-party "electronic clearinghouses" could partially offset those savings by taking a cut of the distribution action (see story page 10).

Industry observers believe that ESD is poised for explosion as vendors, resellers and buyers work out licensing, purchasing, security and pricing issues. In a survey of 50 software vendors, Cambridge, Mass.-based market research firm Forrester Research, Inc. found that 25 of them expect to generate half their revenue through ESD by 1999, compared with eight who can claim that percentage today.

STILL IN EARLY STAGES

The ESD market has enjoyed a few notable deals already, such as the Defense Logistics Agency's five-year, \$50 million commitment in July to electronically purchase Microsoft Corp. software through San Jose, Calif.-based CyberSource Corp.'s Software.net site. CyberSource has also signed a sizable ESD contract with the U.S. Department of Transportation, although CyberSource Chief Executive Officer Bill McKiernan declined to divulge details.

These examples remain the exception, not the norm. Most corporations do not yet have the purchasing mechanisms in place. For instance, most use purchase orders, not credit cards, for corporate purchases, and often these do not exist electronically between corporate procurement departments and software suppliers. That is not necessarily an absolute barrier. The Progressive Corp., an auto insurer in Cleveland, for instance, recently downloaded RealAudio server software from Progressive Networks' site and later received a paper invoice, said Ryan Conlon, IS manager at the insurer.

Further, despite their best efforts, software vendors and resellers have yet to work out a means of administering vol-

ume and site licenses for electronically distributed software.

In fact, volume licensing is the reason that Terry Jones, chief information officer at Sabre Group, the Dallas-based computerized reservation giant, is not yet involved with ESD. "Companies want to know that they are in compliance with volume agreements and that they don't have the software piracy association coming after them," Jones said. "Individuals in the consumer market click on 'Yes, I agree' to those five-page statements they don't read, but companies don't do that."

What would happen, for instance, if a company lost software in a computer crash? In the physical world, the company would simply fetch its master disk and remake copies. But in an electronic world, would the company have to purchase another copy? Would a built-in counter prevent them from making additional copies? "You may be looking at more of a customer service problem than it's worth," said Craig Coffman, president of Card Shell Co., a credit-card accessories maker in Colorado Springs that does buy software electronically.

"The question of how do you prove you already own it and therefore qualify for a lower price has to be resolved," said Gareth Herschel, an analyst at Gartner Group, Inc. in Stamford, Conn. "Or how do you deal with a situation where a bad copy was delivered or one that crashed?"

Most users believe that volume license negotiations will have to continue to take place on a face-to-face basis. "Since we deal in volumes, it allows us to negotiate," said Gary Osborn, CIO at Hughes Space and Communications Co. in El Segundo, Calif. "We get the attention from the company."

These questions are under debate among software users, vendors and resellers. The Software Publishers Association (SPA) has placed top priority on establishing guide-

Please turn to next page

COVER STORY ELECTRONIC SOFTWARE DISTRIBUTION

Continued from page 9

lines for licensing in an ESD environment, according to Alexis Tatem, Internet section manager for the Washington-based trade association. "There's no publisher yet that I know of that's doing volume licensing using ESD," she noted.

Technology promises to address these issues, but not right away. Early attempts include licensing servers from the likes of TechWave, Inc. in Seattle. These systems "count" the number of software programs on the network to ensure compliance. TechWave can then issue licenses over the Internet using RSA Data Security, Inc. security. Also, Portland Software "is moving in the right direction," said Chris Stevens, an electronic commerce analyst at Aberdeen Group in Boston. "They seem to be the leader in terms of understanding what the real requirements are."

One of these requirements is the ability to map into an existing license management system, such as Microsoft's Select or Lotus Development Corp.'s Passport, said Steve

Muccini, director of electronic commerce programs at Corporate Software & Technology, a software reseller in Norwood, Mass.

"The software needs to consider the specific entitlements," Muccini said. For instance, you might have a different license program for specific locations in the firm. Plus, "there are different volume license programs with different reporting requirements," he said.

UNWELCOME ADVANCES

Automated licensing also poses another concern. The SPA's Tatem pointed out that some users may bristle at the policing such technology implies. In today's physical world, most software publishers permit an honesty system to enforce their volume license agreements.

A recent Microsoft attempt to establish a standard tracking technology was greeted coolly. The software behemoth suggested that software companies embed a Microsoft programming interface called Licensing Software Application Programming

Interface (LSAPI) into their programs. LSAPI was to serve as a common device for tracking how many times a company copied a program. But many software companies chafed at this idea, regarding it as an intrusion by Microsoft into their own designs.

"Getting software publishers to agree on an API is a very difficult thing to do," conceded Martin Tobias, Microsoft's marketing manager for emerging channels.

As evidence that the ESD fabric is still unformed, publishers and resellers have yet to work out exactly what roles each would play in the new digitally distributed world and how to safely distribute tamper-proof software "containers" and "wrappers" online (see story below).

Meanwhile, the price breaks that have caused consumers to turn increasingly to online distribution channels are less compelling in the corporate world. The \$20 a consumer saves by purchasing Qualcomm, Inc.'s Eudora eMail client online for \$69 buys two Friday night movie tickets with popcorn. But if \$6 billion-plus Cisco buys

An Unsettled Channel

AS SOFTWARE VENDORS AND RESELLERS try to establish conformity in the world of ESD, they resemble European nations sputtering toward a common currency. This much seems sure: Although it might seem simple for software manufacturers to sell from their sites, the

middleman will, at least for the foreseeable future, have a role in ESD. Less certain is what role traditional distributors, retailers and value-added resellers (VAR) will play.

Traditional distributors such as Ingram Micro, Inc., Mergel, Inc. and Tech Data are all formulating ESD plans, as newer distributors such as VarCity try to move onto their turf.

Meanwhile, brick-and-mortar retailers such as CompUSA and Egghead have a lot of thinking to do to ward off ESD threats from online specialists such as CyberSource's Software.net and Online Interactive, Inc. (recently bought by Micro Warehouse). They must also keep an eye on just about anyone with a Web site and a penchant to sell software as a side business.

But proving again that technology can complicate things, two new breeds of firms are entering the mix: the clearinghouse and the encryptor. How they fit in is a matter of opinion.

The clearinghouse's role is to track sales by a reseller and report back to the software vendor. Examples of clearinghouses are

CyberSource's CyberSource division, LittleNet, LLC and Softbank Net Solutions.

To accomplish this tracking, clearinghouses are using technology from the encryptors, which include Portland Software, TestDrive, IBM's Internet division and TechWave.

The encryptors make "key" and "wrapper" technology that allows software to go out in a "container." To open the container, buyers separately receive a complex alphanumeric code — the key, designed by the encryptor but issued by the clearinghouse after it issues the wrapped software. The clearinghouse reports the number of keys it issues to the software publisher, effectively keeping track of sales.

The wrapper may include enforcement mechanisms that determine how many times a piece of software can be used (if the program is intended for trial purposes) or copied.

Not all software publishers are beholden to this approach. Some pundits suggest that smaller, lesser-known publishers with less clout than large publishers will not impose clearinghouse requirements.

a master version for 1,000 users, it saves only the \$20, not \$20,000. The same holds true for products from Microsoft and Lotus, which on average cost only 10% less in the online world than in the physical world.

But ESD holds promise for corporate price reduction in the form of new software architectures and pricing models, such as application renting and stripped-down "applet" versions of bulky programs.

Some software companies, such as database leader Oracle Corp., are suggesting "free" provision of electronically delivered software programs that would arrive sporting advertising logos in screen space purchased by independent advertisers. Translation: The advertiser, not the user, pays.

In pay-per-use models, users fetch whole applications or portions of them — applets — and then pay a fee for each session. Some users may consider this approach a less expensive alternative to certain Microsoft volume accords that require users to commit to hundreds of copies, even if they do not use them.

It's also not entirely clear who pays whom for these services, although the process is certain to add price for the buyer. Tom Little, president of LittleNet, said distributors pay him between 75 cents and \$2.50 per transaction.

Not all parties agree on exactly how and where software gets wrapped. Ingram Micro Vice President Fadi Cheade said his company will provide wrapping, while Tech Data said that is not permitted in the Microsoft model.

Describing industrywide deliberations, Cheade noted, "You would not believe the number of debates we've had." The fracas has included a dispute over who owns registration data obtained in the sales process, he said.

Of course, resolution will eventually come less through peace talks and more through a good old market slugfest. "In ESD, there is still some jockeying for position," said Duncan Shaw, senior vice president of Softbank Net Solutions. "Some think of it as a new channel. The more difficult thing is for the ISVs, the distributors and the VARs of the world to decide who plays what role with what product."

ESD also enables you to preview software before you purchase it. TestDrive Corp. in Santa Clara, Calif., lets users download software over the Internet and then uninstall it without altering their system configurations. If the user purchases the product, a key is provided to unlock the proprietary encryption features. TechWave also offers TryAndBuy technology, which is integrated with its volume licensing server.

But such new paradigms will not fit for all software users. Oracle's notion of selling ad space on software programs is certain to run into opposition in some workplaces that would consider it a matter of inappropriate commercial intrusion. Pay-by-use's success will depend in part on rates.

As vendors, resellers and users hash out an ESD licensing template, it is the consumer market that will account for many ESD purchases. In a 1996 survey of 2,000 homes, Boston-based The Yankee Group found that downloading software was the third most popular reason for staying online, ahead of fetching sports scores, checking stock prices or reading the news. It trailed only E-mail and bulletin-board chatting.

Companies will buy as well, albeit in departmental and even individual quantities. Charles Jennings, chief executive at Portland Software Corp., a Portland, Ore., company that provides software encryption for ESD, said "corporate users are buying over the Web outside of traditional IS systems management." In other words, end users might use their own credit cards to acquire software as they need it.

Details aside, the corporate world is hopeful about ESD's potential. Counting himself among the ESD enthusiasts, Progressive's Conlon wondered aloud why providers such as Microsoft and Lotus are not yet in full ESD swing. "Why don't they just do it?" he asked.

Sometimes technology's simplest promises are the hardest to execute.

Halper is a freelance journalist in San Francisco.

E Visit our online companion Webzine, *Emmerge*, at www.computerworld.com/emmerge for an expanded version of these stories, URLs and a related diagram.

Ups and Downs of ESD

When we asked corporate users and software vendors about the prospects of ESD, we got a variety of responses:

"Individuals in the consumer market click on 'Yes, I agree' to those five-page [license agreement] statements they don't read, but companies don't do that. We have a fairly rigid and centralized software acquisition group."



TERRY JONES,
CIO, Sabre Group

"Since we deal in volumes, [face-to-face negotiations] allow us to negotiate. We get the attention from the company."



GARY OSBORN, CIO,
Hughes Space and Communications, on why volume license agreements won't occur electronically

"The real question is, in what form will software be sold?"

FADI CHEADE, vice president, global customer information service at distributor Ingram Micro, Inc., on whether electronic software distribution will lower software prices



COVER STORY ELECTRONIC SOFTWARE DISTRIBUTION

Continued from page 9

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middleman will, at least for the foreseeable future, have a role in ESD. Less certain is what role traditional distributors, retailers and value-added resellers (VAR) will play.

Traditional distributors such as Ingram Micro, Inc., Merisel, Inc. and Tech Data are all formulating ESD plans, as newer distributors such as VarCity try to move onto their turf.

Meanwhile, brick-and-mortar retailers such as CompUSA and Egghead have a lot of thinking to do to ward off ESD threats from online specialists such as CyberSource's Software.net and Online Interactive, Inc. (recently bought by Micro Warehouse). They must also keep an eye on just about anyone with a Web site and a penchant to sell software as a side business.

But proving again that technology can complicate things, two new breeds of firms are entering the mix: the clearinghouse and the encryptor. How they fit in is a matter of opinion. The clearinghouse's role is to track sales by a reseller and report back to the software vendor. Examples of clearinghouses are

CyberSource's CyberSource division, LittleNet, LLC and Softbank Net Solutions.

To accomplish this tracking, clearinghouses are using technology from the encryptors, which include Portland Software, TestDrive, IBM's Internet division and TechWave.

The encryptors make "key" and "wrapper" technology that allows software to go out in a "container." To open the container, buyers separately receive a complex alphanumeric code—the key, designed by the encryptor but issued by the clearinghouse after it issues the wrapped software. The clearinghouse reports the number of keys it issues to the software publisher, effectively keeping track of sales.

The wrapper may include enforcement mechanisms that determine how many times a piece of software can be used (if the program is intended for trial purposes) or copied.

Not all software publishers are beholden to this approach. Some pundits suggest that smaller, lesser-known publishers with less clout than large publishers will not impose clearinghouse requirements.

a master version for 1,000 users, it saves only the \$20, not \$20,000. The same holds true for products from Microsoft and Lotus, which on average cost only 10% less in the online world than in the physical world.

But ESD holds promise for corporate price reduction in the form of new software architectures and pricing models, such as application renting and stripped-down "applet" versions of bulky programs.

Some software companies, such as database leader Oracle Corp., are suggesting "free" provision of electronically delivered software programs that would arrive sporting advertising logos in screen space purchased by independent advertisers. Translation: The advertiser, not the user, pays.

In pay-per-use models, users fetch whole applications or portions of them — applets — and then pay a fee for each session. Some users may consider this approach a less expensive alternative to certain Microsoft volume accords that require users to commit to hundreds of copies, even if they do not use them.

It's also not entirely clear who pays whom for these services, although the process is certain to add price for the buyer. Tom Little, president of LittleNet, said distributors pay him between 75 cents and \$2.50 per transaction.

Not all parties agree on exactly how and where software gets wrapped. Ingram Micro Vice President Fadi Cheade said his company will provide wrapping, while Tech Data said that is not permitted in the Microsoft model.

Describing industrywide deliberations, Cheade noted, "You would not believe the number of debates we've had." The fracas has included a dispute over who owns registration data obtained in the sales process, he said.

Of course, resolution will eventually come less through peace talks and more through a good old market slugfest. "In ESD, there is still some jockeying for position," said Duncan Shaw, senior vice president of Softbank Net Solutions. "Some think of it as a new channel. The more difficult thing is for the ISVs, the distributors and the VARs of the world to decide who plays what role with what product."

ESD also enables you to preview software before you purchase it. TestDrive Corp. in Santa Clara, Calif., lets users download software over the Internet and then uninstall it without altering their system configurations. If the user purchases the product, a key is provided to unlock the proprietary encryption features. TechWave also offers TryAndBuy technology, which is integrated with its volume licensing server.

But such new paradigms will not fit for all software users. Oracle's notion of selling ad space on software programs is certain to run into opposition in some workplaces that would consider it a matter of inappropriate commercial intrusion. Pay-by-use's success will depend in part on rates.

As vendors, resellers and users hash out an ESD licensing template, it is the consumer market that will account for many ESD purchases. In a 1996 survey of 2,000 homes, Boston-based The Yankee Group found that downloading software was the third most popular reason for staying online, ahead of fetching sports scores, checking stock prices or reading the news. It trailed only E-mail and bulletin-board chatting.

Companies will buy as well, albeit in departmental and even individual quantities. Charles Jennings, chief executive at Portland Software Corp., a Portland, Ore., company that provides software encryption for ESD, said "corporate users are buying over the Web outside of traditional IS systems management." In other words, end users might use their own credit cards to acquire software as they need it.

Details aside, the corporate world is hopeful about ESD's potential. Counting himself among the ESD enthusiasts, Progressive's Conlon wondered aloud why providers such as Microsoft and Lotus are not yet in full ESD swing. "Why don't they just do it?" he asked.

Sometimes technology's simplest promises are the hardest to execute.

Halper is a freelance journalist in San Francisco.

Visit our online companion Webzine, *Emmerce*, at www.computerworld.com/emmerce for an expanded version of these stories, URLs and a related diagram.

Ups and Downs of ESD

When we asked corporate users and software vendors about the prospects of ESD, we got a variety of responses:

"Individuals in the consumer market click on 'Yes, I agree' to those five-page [license agreement] statements they don't read, but companies don't do that. We have a fairly rigid and centralized software acquisition group."

TERRY JONES,
CIO, Sabre Group



"Since we deal in volumes, [face-to-face negotiations] allow us to negotiate. We get the attention from the company."

GARY OSBORN, CIO,
Hughes Space and Communications, on why volume license agreements won't occur electronically



"The real question is, in what form will software be sold?"

FADI CHEADE, vice president,
global customer information service at distributor Ingram Micro, Inc., on whether electronic software distribution will lower software prices



FEATURE STORY COLLABORATIVE FORECASTING

Vision QUEST

To those who choose to use it, the Internet has become the biggest, most fabulous shopping mall ever, selling everything from jalapeño hot sauce to heavy metal pop music.

But will the 'net do anything for traditional, store-based retailing, too? Might it help squeeze time, cost and slack from inefficient supply chains by keeping production and inventory levels in better sync with fluctuating demand?

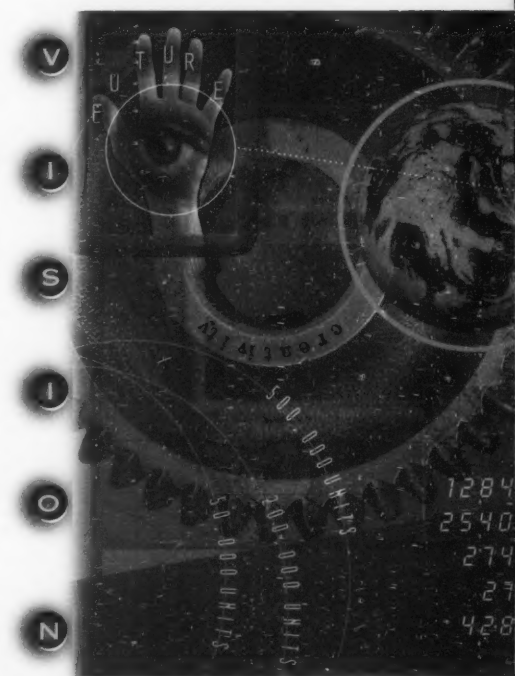
Yes, yes and yes, concluded Wal-Mart Stores, Inc., Sears, Roebuck and Co., Sara Lee Corp., Warner-Lambert, Inc. and other major players in the consumer packaged goods and retailing industries last fall as they rallied around a promising new Web-based scheme called CFAR.

Pronounced "see far," CFAR (collaborative forecasting and replenishment) promised a formalized way for manufacturers and retailers to collaborate on future demand for products. By posting selected internal data on a shared Web server, supply chain partners could share and jointly develop more accurate forecasts.

"The better the forecasting, the easier it is to align our purchases, inventory and transportation," said John Hewson, manager of forecasting at Eastman Chemical Co., a chemicals maker in Kingsport, Tenn. Eastman plans to use 'net-based software from Logility, Inc. in Atlanta to consolidate and interpret long-range forecasts submitted by its global sales force.

But getting CFAR to work as promised and be adopted widely as an industry standard is taking longer than it seemed it would last year. Since first helping to design and introduce CFAR, for instance, Wal-Mart and other potential users have deemed its original scope too limited, and they're now scrambling to expand it into CPFR (same pronunciation, with a P that stands for planning). CPFR would enable the forecast calculation to incorporate specific information about how much of an item will actually be available for delivery at some future date.

Benchmarking Partners, a Boston-based consulting firm that had spearheaded the CFAR concept, has abdicated its leading role. Now it's mainly contributing technical ideas to the standards process and offering related training and consulting services. "CFAR hasn't progressed as much as we would have liked, but it's becoming a pretty exciting issue. There has been progress,



CPFR could **ELIMINATE** \$150B
in consumer goods excess
inventory, if it **HOLDS** together as
as a standard. *By John Verity*

and we're trying to accelerate the pace," said James Uchneat, a Benchmarking partner.

Hammering out the definitions of CPFR now are technologists from nearly 50 retailing and manufacturing companies, operating as the Dynamic Information Sharing Committee.

Meanwhile, suppliers such as PeopleSoft, Inc., i2 Technologies and SAP America have begun adding rudimentary 'net-based collaborative forecasting features to their software products with-

out waiting for CPFR to be fully defined. And so the risk arises that American industry will lose out on some of CPFR's potential savings as the idea fragments into incompatible schemes.

Yet interest and activity in collaborative forecasting is growing by the minute. Consider that across the entire U.S. consumer goods market, there's more than \$700 billion in excess inventory, \$150 billion of which CPFR could theoretically help wipe out, according to Benchmarking Partners.

Plus, sharing demand forecasts with business partners is widely recognized as the next leap forward in managing supply chains. Boston-based retailing consultant Vahe Katros said he reckons a retailing giant such as Wal-Mart might eventually gather so much data about consumer demand that its forecasts will become a major business — much as American Airlines now gets the bulk of its profits from its Sabre reservation system.

WHAT THE PLANS CALL FOR

Here's how CPFR proposes to tighten and lubricate creaky old supply chains. First, it calls for placing a dedicated server on the 'net to which a retailer and its supplier will electronically post their latest sets of forecasts for a list of products. Then, the server will grind through the pairs of corresponding numbers and flag any that differ beyond a preset safety margin — say, 5%. At this point, planners on both sides of the exchange may collaborate electronically and try to converge on a single, mutually supported forecast for each exception. To be effective, though, that collaboration must go beyond simply E-mailing numbers, written comments or even full spreadsheet models back and forth.

Indeed, supply chain partners are likely to see "thousands of exceptions per day," said Stanley Elbaum, vice president of interenterprise solutions at i2 Technologies, a Dallas maker of supply-chain management software. Dedicating people to work those out manually is out of the question, so rules-based systems — in development at i2 and Manugistics, Inc. — will be needed that can respond automatically to most CPFR exception messages.

Key to the CPFR approach is its comprehensive, object-based data model. That will help collaborators securely share a large database, attach rich annotations such as spreadsheets to data objects and quickly retrieve entire sets, or threads, of related messages. Depending on the complexity, it may take a dozen or more exchanges before two sides converge on one forecast number.

To help demonstrate the CPFR concept, Wal-Mart and Warner-Lambert ran a manual collaborative forecasting pilot last fall, just to show what benefits it could achieve. They've told other companies that it helped reduce their inventories of Listerine mouthwash, a Warner-Lambert product, by 25%. A second pilot, using more sophisticated messaging over the 'net and involving Wal-Mart, Sara Lee, SAP America and Lucent Technologies, Inc., was shown in April at IQ 97, a supply-chain technology show. There, a planning component was added.

But full-blown CPFR setups are far from reality because many of the technical details still need working out. And according to Benchmarking's Uchneat, there are some difficult organizational issues in implementing CPFR: "Who makes what decisions?"

Please turn to next page



FEATURE STORY COLLABORATIVE FORECASTING

Continued from page 13

This is not a slam dunk for most people because of issues like new job positions and changes in execution."

The main challenge, though, is to flesh out the newly expanded CPFR business process and data model. This means working out precise definitions for the various pieces of data — so-called metrics — that CPFR partners will share. "The goal is one set of measurements," said Ram Viswanathan, a manager at Ernst & Young's management consulting practice in St. Louis.

To help, complex chunks of CPFR data will be packaged as self-contained objects that, in theory, can be interpreted by any company's existing information systems. For example, there'll be an object referring to the inventory size of a complete category of products — all sizes and brands of toothpaste, say. "The technology must be able to reconfigure itself to each partner and align with different systems," i2's Elbaum said. The object structure is being designed so it can work with either the Common Object Request Broker Architecture stan-

dard or Microsoft Corp.'s proprietary Distributed Component Object Model scheme.

NO TIME LIKE THE PRESENT

Even as software makers wait for the full CPFR standard to get nailed down (see story below), users are working with early collaborative forecasting tools. Take Heineken USA: Close to 100 of its independent beer distributors submit forecasts electronically to Heineken USA's White Plains, N.Y., office using Logility's Resource Chain Voyager. Involving about 40% of Heineken's total volume, this setup has cut order cycle times from 12 weeks to just four or five.

Eastman Chemical will use Logility's package to improve its forecasts of chemicals such as the PET plastic used in soft drink bottles. Eastman expects to create better monthly tactical and operational forecasts, looking forward 12 to 18 months, and better annual strategic plans, which look out four to five years. Eventually, it will be able to share these improved forecasts with suppliers, helping reduce its inventories of raw materials.

The main challenge is to make sure the emerging CPFR standard gets widely adopted and doesn't fragment. Otherwise, incompatibilities will prevent competing software products from interoperating and force retailers to collaborate with different suppliers using different data formats — the last thing any of them can tolerate.

So far, the CPFR committee's almost 50 members seem to have enough clout to make the CPFR standard stick. Benchmarking's Uchneat said, "Openness is the key issue. And we're confident the software community is poised to make this work."

And as most retailing and supply chain software execs will say privately, Wal-Mart's aggressive backing and promotion of CPFR are all that's needed to make the standard's future success a very accurate forecast.

Verity is a freelance writer in New York.

For more information, check out www.cpfpr.org on the Web. For a diagram on CPFR, see www.cpfpr.org/pilot.shtml.

FORECASTING EFFORTS

SPURRED BY CUSTOMERS' mounting interest in the CPFR concept but too impatient to wait for an official standard, software makers are rushing to add 'net-based collaboration to their supply-chain products.

■ SAP America, for instance, is extending its popular R/3 enterprise resource planning package with a facility it calls Open Forecast. This "Intelligent communications infrastructure" was designed to connect all potential partners in a supply chain, said Jory Stanley, program manager at SAP. Written in Java and designed to interoperate with non-SAP software as well as R/3, Stanley said Open

Forecast is in use now by several major users, although he declined to name them.

Having been involved with the CFAR and CPFR pilots, Stanley said, SAP America "wanted to accelerate the process" of getting a working product to market. But, he added, "we are committed to being totally compliant with the [CPFR] industry standard and rules and metrics."

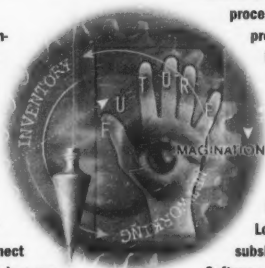
■ Also moving ahead is Logility, an Atlanta-based subsidiary of American Software, Inc. It expects to sign up a total of 10 customers for its Resource Chain Voyager program over the next six months, said Andrew White, vice president of research and development

(see main story). He claimed that the product will be adaptable to the new CPFR standard once that's in place.

■ Manugistics and PeopleSoft, two other players, have also begun adding facilities for electronic-mail-based sharing of data and annotations over the Internet.

■ i2 Technologies is building CPFR-compliant extensions onto its core product, a so-called optimization engine, that help schedule manufacturing operations based on available supplies of raw materials and other constraints. Stanley Elbaum, vice president of interenterprise solutions and a researcher at Benchmarking when it unveiled CFAR last year, said the combination should help manufacturers adapt better to unexpected changes, "when the real world intrudes and upsets all your pretty plans."

— JOHN VERITY



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Microsoft Corporation
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Michael Rogers,
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— Renee Gallant, Marketing Manager, Microsoft Corporation

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— Gary K. Landry, Executive Vice President, Electronic Commerce, ECWorks, Inc.

Applications are currently being accepted for The Internet Open in Boston, March 24-26, 1998 and Los Angeles, September 23-25, 1998. For information, access our website at www.idg.com/ice or, call Andrew Burrell, Program Manager at The Internet Open HOTLINE at 508-820-8603.

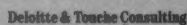
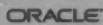
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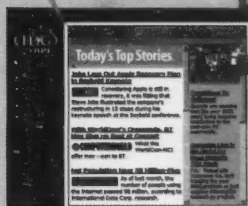
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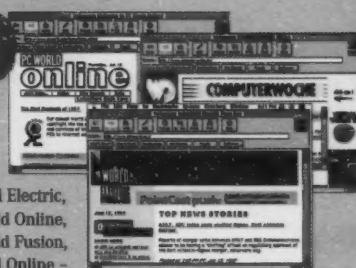
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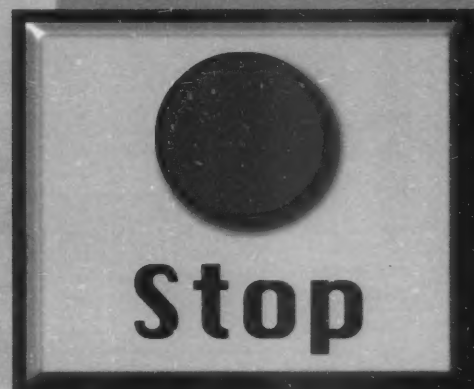


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IT Careers

Job search

DISCONNECTS

By Linda Wilson



Chris Bauerle of Eugene, Ore., spent months searching for a job in the IS industry. He found one in July as a technical sales and support worker at Symantec Corp. But the new job didn't come easily. Bauerle encountered a lot of slammed doors and a lot of inflexible job requirements.

"They weren't willing to spend a little money on training to breed a little loyalty. They want to see an MIT graduate with computer programming experience, a lot of Unix and oodles and oodles of other skills," Bauerle says.

Symantec's technical-support operation was different. The Cupertino, Calif.-based company offered Bauerle a position supporting its WinFax application and provided two weeks of training.

Bauerle's case illustrates how missed connections and inflexible negotiations among employees, employers and recruiters often make a tight job market even worse for everybody.

Bauerle isn't alone in his frustration. Just ask Fred Brown of

Chicago, who also changed jobs recently. Brown's beef: the lack of communication on the part of many employers about his status in their search process.

Despite the frustrations, Brown found a position he's thrilled with — as a networking technical support representative at 3Com Corp.'s Mount Prospect, Ill., office.



where he stood after his initial interview, Brown says.

Unhappy employers

Employees aren't the only ones frustrated with the job market and the inflexible terms at the bargaining table. Employers are tired of dealing with employees who see nothing but dollar signs and who job-hop.

That's been the experience of Catherine Rodewald, vice president and chief information officer at Amresco, Inc. in Dallas. She lost three Oracle database administrators in one year. As a result, Rodewald outsourced the entire function several months ago.

The situation is similar at Healthcare Association of New York State in Albany, according to Walter Koshykar, vice president of information systems. After he couldn't find people experienced in PowerSoft's PowerBuilder, Koshykar hired four experienced programmers and spent one and a half years training them.

"All of a sudden, they became a hot item. We lost all four people over the course of about a year," he says.

Both Koshykar and Rodewald lost experienced employees because they didn't match high salaries and perks such as signing bonuses that were waved in front of their workers. But to do so would be unfair to existing information technology staffers and would lead to morale problems, they say.

Nonetheless, Brown was surprised when several companies he had interviewed with later called with job offers. "I didn't think they were interested" because the companies never told him

"Ten years ago, you might go to the job fair and hire five people. Now, it is possible to go to a job fair and not hire anybody."

— Glen Gilchrist

Recruiter woes

Professional recruiters are finding as much to be frustrated about as employers and employees. There are so many companies chasing so few candidates that recruiters find it difficult to be heard above the noise.

"Ten years ago, you might go to the job fair and hire five people. Now, it is possible to go to a job fair and not hire anybody," says Glen Gilchrist, a senior technical recruiter at Stratagem, Inc. in Milwaukee, a consulting firm that hires primarily full-time employees.

Adding to the problem are employers, such as some of the ones Bauerle encountered, who have an unrealistic picture about the type of experience prospective employees are likely to have.

"They want someone with PeopleSoft experience, but there are only a finite number of people with this experience," says Peter Regenye, principal at Simmons Rohs Associates in Galloway, N.J. It's more realistic, he says, to look for someone "who works for a major organization and has been through a major implementation and knows what to expect."

To be more successful, employers need to spend enough time with recruiters at the beginning of the process to paint a picture of exactly what type of person and skills will fill the bill, Regenye says. Employers also need to respond quickly when candidates are presented to them. □

Wilson is a freelance writer in Glen Ellyn, Ill.

Too many IS managers "want to see an MIT graduate with computer programming experience, a lot of Unix and oodles and oodles of other skills."

— Chris Bauerle



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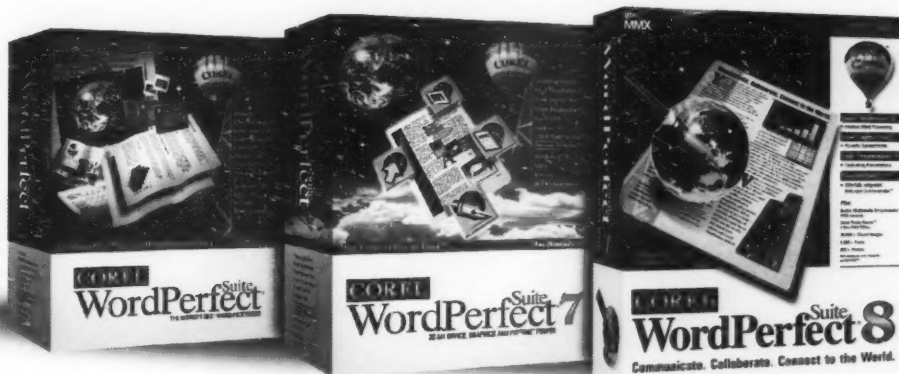


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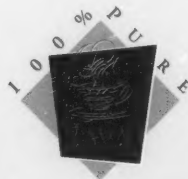
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BEATING the ODDS

YOU CAN'T LOSE GAMBLING ON IS JOB OPPORTUNITIES IN LAS VEGAS, PHOENIX, TUCSON AND ALBUQUERQUE. BUT ONLY THE RIGHT SKILLS WILL GET YOU THE BIG PAYOFF / BY WILLIAM SPAIN

One of the differences between the Southwest and the rest of the country is that while much of the U.S. was mired in the economic doldrums of the late 1980s and early 1990s, this region was doing just fine, thank you. And when the financial outlook for the rest of us brightened a few years ago, it began burning here with the intensity of a solar flare.

With a continuing influx of both people and capital into these relatively wide-open spaces, there's no reason to expect a meltdown any time soon. But IS salaries tend to be lower here, unless you've got the right skills.

Las Vegas

MARKET SUMMARY: It's a pretty good bet that Las Vegas will remain one of the fastest-growing cities in the country for some time to come.

It is the No. 1 tourist destination in the nation, with more than 25 million visitors last year, and the local gambling, convention, entertainment and hospitality industries continue to drive the economic machine.

Although the biggest job growth has occurred in the service sector, there's a continually expanding need for designers, engineers and programmers from across the IS spectrum.

"Las Vegas isn't really a high-tech town," says Debbie Perrault, vice president of information systems at GES Exposition Services. "It is really more 'medium-tech.'"

TOP CLIENT/SERVER SKILLS: Application development, migration and support. The Windows NT environment is strong, along with Hypertext Markup

Language, Java and Oracle server skills. There's enormous potential for Internet applications such as cybercash systems and related security programs.

TOP MAINFRAME SKILLS: Many of the big casinos continue to rely on IBM AS/400 systems and seem in no hurry to switch over. Pascal, C++ and FoxPro are strong skills contenders, and demand for year 2000-related problem solving skills should increase.

Phoenix

MARKET SUMMARY: The economy is staying as hot as the desert climate, with a growing number of small to midsize businesses joining some of the established big players such as Dial Corp. and Southwest Airlines in job creation.

"The market in Phoenix right now is pretty interesting," says Mike Barry, director of information technology and services at VIADCorp., a convention, airline catering and financial services company. "There are not a lot of big firms, but a lot of small ones keep popping up."

TOP MAINFRAME SKILLS: Many legacy systems are still in place, and the demand for Cobol skills is on the rise, especially for year 2000 conversion.

TOP CLIENT/SERVER SKILLS: Sybase, Oracle and DBA are all hot, along with PowerBuilder and Visual Basic. There's lots of movement to client/server going

on, with a resulting need to transfer current mainframe applications.

Tucson

MARKET SUMMARY: Although large organizations such as AlliedSignal, Inc. and Hughes Missile Systems set the pace for IS hiring in Tucson, the area is also becoming something of a software center as talent flees from the increasingly crowded West Coast for a taste of the clean high-desert air.

The area is also popular with retired or semiretired military officers drawn by nearby defense industries.

TOP CLIENT/SERVER SKILLS: Sybase, PowerBuilder, Oracle, Visual Basic and Informix.

TOP MAINFRAME SKILLS: Some legacy systems are still in place; Cobol and MVS are also present.

Albuquerque

MARKET SUMMARY: Albuquerque isn't as scorching economically or weatherwise as the other boomtowns of the Southwest, but it is merely a matter of degree. High-tech operations such as Intel Corp. and Honeywell Corp. have invested heavily in the area. And the U.S. Air Force and famed research centers such as Sandia and Los Alamos keep the demand for high-level IS talent steady.

TOP CLIENT/SERVER SKILLS: There's

SALARIES IN THE SOUTHWEST
Typical IS salaries in Arizona, Nevada and New Mexico

JOB TITLE	TOTAL COMPENSATION
Chief information officer	\$87,000
Director of systems development	\$57,000
Computer operations manager	\$56,000
Manager of voice and data communications	\$56,000
Project manager, systems and programming	\$53,000
Database manager	\$51,000
Director of networks	\$49,000
Senior systems programmer	\$47,000
Systems programmer	\$44,000
Webmaster/Web designer	\$39,000
Systems analyst	\$38,000

Source: Computerworld's 1997 Annual Salary Survey

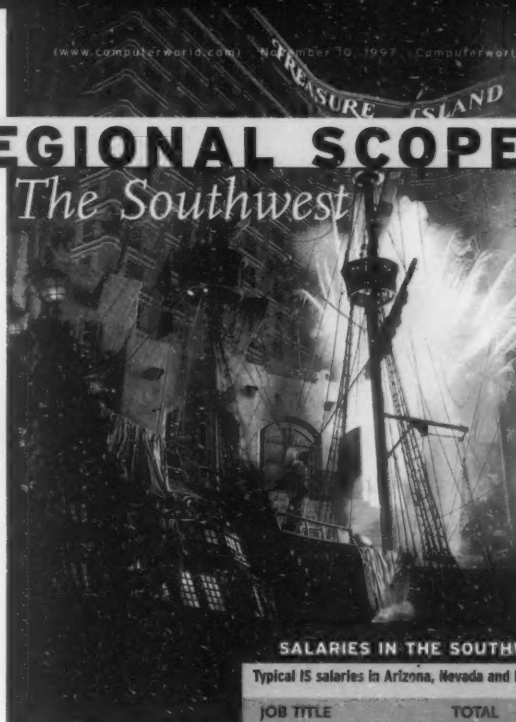
plenty of call for object-oriented programmers and IS professionals with good network design and implementation skills. C++ and Visual Basic are also high on the most-wanted list.

TOP MAINFRAME SKILLS: Cobol and MVS are both in high demand, and year 2000 projects are fueling plenty of hiring. The University of New Mexico alone has more than 2 million lines of Cobol code to go through, says John Sobolewski, associate vice president for computing. □

Spain is a freelance writer in Chicago.

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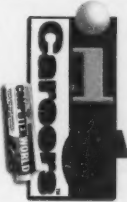
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The University of St. Thomas is a private, Catholic, comprehensive, liberal arts University with a student body in excess of 10,000. Of that number, 5000 are in the undergraduate College and 5000 in five graduate schools. The University is an equal opportunity employer and is committed to a program of affirmative action. Women and persons of color are strongly encouraged to apply. Send a cover letter and resume with the names, addresses, telephone numbers and e-mail addresses of at least three references by January 1, 1998 to: Dr. Bernice Foltz, Director, Graduate Programs in Software, Mail 9055391, 2115 Summit Avenue, St. Paul, MN 55105. Applications received after this date are not guaranteed consideration.

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Full-time Systems Analyst to develop, code, test and maintain computer programs, understand data analysis and design for implementation support, and develop enhancements to vendor software. Responsible for on-call and back-up to resolve complex processing error or production problems. Must have a Master's degree in Computer Science. Educational background must have included Visual, Borland C++, Unix C and C++, Postscript language, Oracle, Unix Shell programming, Java and Javascript, Tcl/Tk, Unix or Unix based operating systems, Solaris Unix, Sun operating, SQL, image processing experience, Client/Server programming, Graphical user interface and Object oriented C++, \$44,488/yr. Send resume to: Georgia Department of Labor, Job Order #GA 6164217, 2879 Covington Highway, Decatur, GA 30032 or the nearest Department of Labor Field Service Office.

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IT CAREERS MIDWEST

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Member of Technical Staff - participate in the design and code development of the network interface to various international and domestic telephone networks. Responsible for the wide area protocols in use including SS7 and ISDN. The code will support various voice and messaging applications on coexisting UNIX systems. Other duties include adding functionality to support improved SS7 capabilities for international customers in the areas of Message Waiting Indicators and Paging Notification; writing code to support vendor supplied enhancements to system switching capability and protocol support; and bug fixing in networking software as appropriate to area of expertise and skill level. Requirements include a Bachelor's Degree in Computer Science or related field, with at least one year of experience with programming in a wide area or mobile based network, or Master's degree. Thorough knowledge of protocol design and performance analysis. Proficiency in the C programming language and the UNIX operating system. Applicants must have a valid work authorization to work in the United States. Salary \$70,000/year. 40 hours/week. Respond with two copies of resume to: Case #71448, P.O. Box 8968, Boston, MA 02114. EOE.

Software Engineer - For airline telecommunication service provider, design, develop & enhance worldwide Baggage Service System software, functional specifications, testing procedures & documentation; monitor online system performance & provide technical support service by util. exp. in design & development of worldwide baggage tracking/management systems for airline industry involving high-volume TTP environment, Transaction Testing system (TTS 1100), Application Common Bag (ACB), Symbolic Stream Generator (SSG), IPF Editor, MAP linker, UNISYS, Dump Analyzer, SQL/Fortran/Assembler/Control languages, RDMS relational database & PCSS (File Control Subsystem). ROOMTS: B.S. in Computer Science & 3 yrs. exp. in job offered or as Systems Analyst w/above exp. OR without degree, 5 yrs. exp. in job offered or as Systems Analyst w/above exp. 40 hr/wk; \$30 to \$40, \$55, \$64/yr. Apply in person or by resume to: GA Dept of Labor, JO C-6162415, 465 Big Shanty Rd., Marietta, GA 30066-3303, or the nearest DOL Field Service Office.

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Software Engineer: Atlanta, Georgia. Design & develop VMEbus Information & Trading Systems, using COBOL, DBL & SQL on DEC 5000/200, VAX VMS System for communication application. Formulate & design tablets, write COBOL code for the various functionalities. Co-ordinate installation in Software development using Oracle 7.0, Avalon 9.0, Wenzner, SQL, SYBASE, T-SQL, FORMS 3.0/4.0, APT 5.2, base telnet, UNIX, MS Windows and IBM PCs & 6 months exp. in comp. Science. Offer \$62,000/yr. Apply in person or by resume to: Georgia Dept of Labor, Job Order # GA 6153665, 2943 North Druid Hills Rd., Atlanta, GA 30329-3909 or the nearest Department of Labor Field Service Office.

Programmer Analyst, Lowell, MA: Design, analyze, develop and implement applications using Visual Basic, Access and Excel. Design, develop and implement specific applications using Dataware's CD-Author and CD-Answer. Develop Multimedia applications using Macromedia Director, X-Files, Authorware, Extreme 3D and Adobe Premiere. Rec'd. Bachelors in Engineering or Comp. Sci. 2 yrs exp in job offered. 40 hrs/wk, 8a-5p, \$27,000/yr. Send resumes to: New Horizon Software Inc., 128 Warren Street, Lowell, MA 01851. Tel: (978)934-9193.

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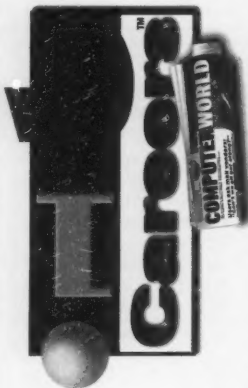


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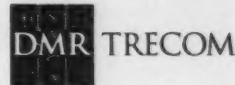
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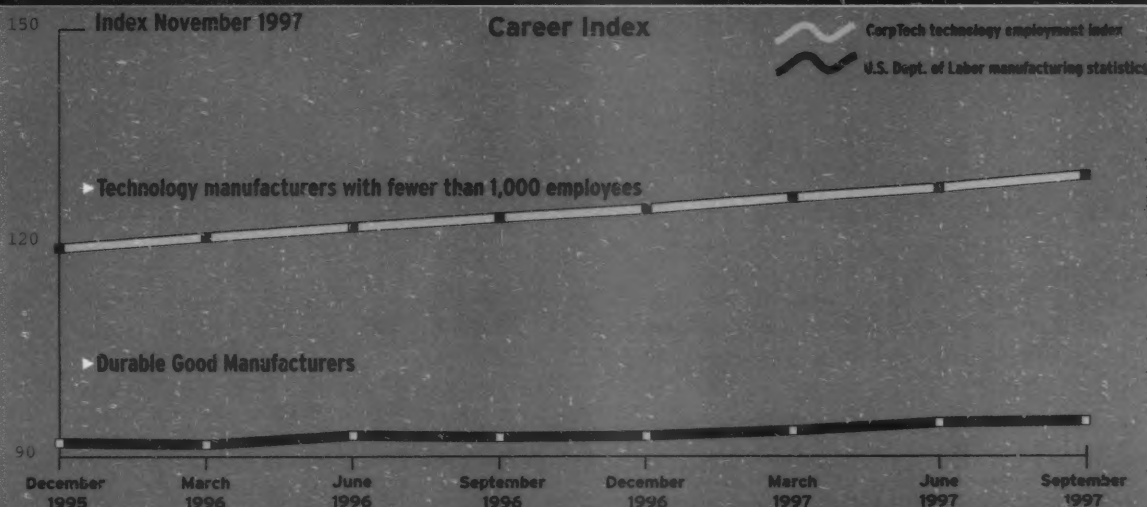
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National Accounts Director/Norma Tamburino, Mack Center 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-0090

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The Week's Stocks

Gainers



Losers



PERCENT

CrossComm	46.7
Xicom	37.6
Yahoo Inc.	34.4
Intelligent Info. Systems	33.3
Advanced Micro Devices (H)	25.6
Logic Works	23.1
Cyrix	19.5
Network Computing Devices	18.8

DOLLAR

Ascend Communications	0.13
Chips and Technologies	-0.73
Advanced Micro Devices (H)	7.00
Yahoo Inc.	6.63
Dell Computer Corp. (H)	6.44
Lattice Semiconductor (H)	5.63
Compuserp Corp.	4.88
Xilinx	4.50

INDUSTRY ALMANAC

HP poised for growth

When third-quarter worldwide PC sales were announced recently, leading PC vendors Compaq Computer Corp. and Dell Computer Corp. had stolen market share from most vendors, except from a resurgent Hewlett-Packard Co.

HP's good showing—in fourth place with 5.8% market share—is one of the many reasons it is a good time to buy HP (NYSE: HWP) stock, analysts say. "They're in for a reacceleration of growth," says analyst William Gorman at PNC Asset Management in Philadelphia. "It's not going to be the over-20% growth they enjoyed back in the early to mid-'90s, but it'll be in the mid-teens."

Sales of HP's Unix workstations have been weak, but that has been offset by inroads into the Windows NT workstation market and strong PC, printer and semiconductor test equipment sales, Gorman says. "Their stock is poised for a reasonably good performance," he says. "It's not trading at a level that would suggest a home run, but it looks OK."

Gorman says he expects HP, in Palo Alto, Calif., to earn 77 cents per share next quarter, \$3 per share for this year and \$3.50 per share in 1998.

For its third quarter, which ended July 31, HP's net earnings were \$617 million, or 58 cents per share, on revenue of \$10.5 billion. But the earnings could have been higher if HP didn't have product shipment delays in its medical business, where revenue fell 27% from the year before, says analyst David Wu at ABN Amro Chicago Corp. "Their motherboard didn't pass government inspection," he says.

HP has had some good quarters and some bad quarters over the past year, but overall performance has been decent, Wu says. HP has been hurt by slower sales in Japan and average results in Europe, he says.

"It's a good company that is on the right track and will grow faster than IBM," Wu predicts. HP also plans to enter the Internet commerce business and should do well there, he says.

—Wylie Wong

PACKING SOME STRENGTH



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Nov. 7 2m

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KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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E-MAIL

Our Web address is www.computerworld.com.
 All staff members can be reached via E-mail on the Internet using the form:
 firstname_lastname@cw.com.
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LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to:

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MAIL ADDRESS

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CONTACTING CW EDITORS

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Editor in Chief Paul Gillin (508) 820-7724
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DEPARTMENT EDITORS/NEWS

News Editor Patricia Keefe (508) 820-8183
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ASSOCIATE EDITORS/FEATURES

Buyer's Guide Amy Mallory (508) 620-7754
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IDG NEWS SERVICE CORRESPONDENTS

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Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com.

3Com Corp. 3,16,51,84	Chesapeake Regal Bakery 12	Emergent Corp. 2	Intergraph Corp. 66	Objectivity, Inc. 48	Sybase, Inc. 55
Aberdeen Group, Inc. 51,76	Chevron Information Technology Co. 1	Enterprise Technology Corp. 29	International Data Corp. 1,6,29	Ohlson, Inc. 31	Symantec Corp. 84
ABB Amro Corp. 106	Chicago Board of Trade 29	Entex Corp. 6	InterNIC 2	OneSystems Group 31	Sysgenics, Inc. 56
Account Mark, Inc. 45	Chicago Mercantile Exchange 29	Ernst & Young LLC 6	Intuit, Inc. 8	Oracle Corp. 1,3,8,12	System Management Arts, Inc. 51
Autism Information Services 45	Chicago Stock Exchange 61	Extreme Networks, Inc. 6	Ipswich, Inc. 66	Parasitic Technology, Inc. 8	Systems Management Specialists 6
Advision, Inc. 16	Choice Hotels International, Inc. 81	Farmalund Industries, Inc. 6	JavaSoft 39	Papco, Inc. 12	Tanning Technology Corp. 39
Adobe Systems, Inc. 48	Chrysler Corp. 81	Federal Express Corp. 14,55,81	JBK Corp. 39	Philadelphia Stock Exchange 29	Technology & Business Integrators, Inc. 6
Advanced Manufacturing Research, Inc. 51,82	Church's Chicken 12	Fibre Channel Association 31	Joseph E. Seagram & Sons, Inc. 6	Panasonic Office Products Co. 48	Technology Solutions Co. 55
Advanced Micro Devices, Inc. 61	CIPI Corp. 12	Fidelity Investments 55	Jupiter Communications, Inc. 29	Parasitic Technology, Inc. 8	Tel-Communications, Inc. 31
AFC Enterprises, Inc. 12	CNN 29	FloNet Corp. 39	KPMG Peat Marwick LLP 29	Papco, Inc. 12	The Chase Manhattan Bank Corp. 39
AGC Management Ltd. 39	Coffin, Sugar & Cocoa Exchange, Inc. 29	Ford Motor Co. 2	Lawyers Weekly Publications 4	Panasonic Office Products Co. 48	The Dow Chemical Co. 1
Al-Touch Communications 39	Colonial Savings F.A. 12,31	Framework Technologies Corp. 48	Legato Systems, Inc. 56	Paxon Data, Inc. 51	The Mesa Group 51
AlfredSignal, Inc. 89	Comcast Corp. 12,31	Freeman Associates, Inc. 61	LinkAge Software, Inc. 51	The Motley Fool 31	The Standish Group 39
American International Group 31	Communications Network Architects 14	Fujitsu Computer Products of America, Inc. 61	Logica, Inc. 39	PPD Pharma, Inc. 76	International, Inc. 68
Systems, Inc. 39	Compaq Computer Corp. 61,66,106,112	FundServ, Inc. 39	Lotus Development Corp. 1,6,8	Pratt & Whitney 39	The Tower Group 39
Ampex Corp. 61	Computer Associates International, Inc. 76,66	G.E.'s Industrial Control Systems 3	Lucant Technologies, Inc. 51	Progressive Strategies, Inc. 76	Tooshia America Information Systems, Inc. 16
Amvaco, Inc. 84	Computer Mail Services, Inc. 51	Outdoor Networks, Inc. 31	Manugistics, Inc. 12	Promus Hotel Corp. 39	Tooshia American Systems Corp. 61
Anderson Consulting 6	Computer Sciences Corp. 6	Cartier Group, Inc. 51,68,72,110	Mattel, Inc. 81	Quintech Corp. 29	Trust 45
Apple Computer, Inc. 24	CompuShare Corp. 8,68	Central Electric Co. 31,82	McAfee Associates, Inc. 8	Requisite Technology, Inc. 45	TSI International Software, Inc. 29
Appix, Inc. 81	Concentric Networks Corp. 12	CES Exposition 89	MCI Communications Corp. 12	Robert Morris College 12	U.S. Chamber of Commerce 12
Arconix, Inc. 61	Consolidated Edison Company of New York 20	Ciga Information Group, Inc. 55	Meridian Research, Inc. 39	Rockwell International Corp. 8	Unisys Corp. 39
Aspect Telecommunications Corp. 51	Continental Grain Co. 1	Cilleto Co. 114	Meta Group, Inc. 6,17	Rockwell, Inc. 34	Uno Restaurants, Inc. 12
AT&T Corp. 6,12,14,16,35,81	Cooper & Peters, Inc. 39,45	CMAC Commercial Mortgage Corp. 12	Micro Logic Corp. 56	RPM Consulting, Inc. 51	US West Media Group 31
Banc One Corp. 39	Coopers & Lybrand LLP 39,45	GTE Corp. 12	Microware Corp. 1,2,6,8,12,16	USA Data Security, Inc. 51	Uninet Technologies, Inc. 16
Bargain Systems, Inc. 51	Cori Corp. 8,55,78,110	Healthcare Association of New York State 84	Millbank, Tward, Hadley & McCloy 6	Samsung Electronics Co. 61	VIAD Corp. 89
BBN Planet Corp. 51	Cot Target Media 39	Hawlett-Packard Co. 39,51,61	Millipore Corp. 51	SAP AG 1,8,12,55,68	Virgin Atlantic Airways Ltd. 81
Beechwood Data Systems, Inc. 14	Crossroads Software, Inc. 55	HFS, Inc. 3,31,61	MTI Technology Corp. 68	Scopus Technology, Inc. 55	Virginia Power 39
Belcan Engineering Group, Inc. 6	Cyrix Corp. 6	Home Federal Bank 61	MTI Technology Corp. 68	Sagitta Technology Corp. 29,61	Via International 39
Benchmarking Associates 68	Data General Corp. 3,31,61	House of Ireland 39	Mutual of New York 31	Security DBS 31	Visto Corp. 55
Binley Ties, Inc. 1	Dataquest 6,62	Hughes Communications, Inc. 89	Myxer Corp. 66	Silicon Graphics, Inc. 114	Vista Technology, Inc. 55
Blue Creek and Blue Shield Association 45	Dell Computer Corp. 16,61,68,106	IBM 3,1,16,17,29	National Science Foundation 2	Simmons Co. 76	VPNet Technologies, Inc. 12
Borland International, Inc. 8	Deloitte & Touche LLP 27,68	Infonetica Research Corp. 51	NationsBank Montgomery Securities, Inc. 24	Simmons Robt Associates 84	WebTV Networks, Inc. 31
Brewers Retail, Inc. 61	Delta Airlines 6	Infonetica Research Corp. 51	NEC Corp. 16	Skylark Corp. 16,51	Wizard Software Corp. 16
Brio Technology, Inc. 12	Digital Equipment Corp. 31,61	Insulet Software, Inc. 8,39	Newware Systems, Inc. 17	Storage Dimensions 66	Workgroup Strategic Services, Inc. 61
Bristol-Myers Squibb Co. 12	Disk Trend, Inc. 61	Innovative Systems, Inc. 48	Netgen Group, Inc. 31	Storage Technology Corp. 29,61	World Wide Web Consortium 8
Brazzale Communications Systems, Inc. 31	DMA Consulting Group, Inc. 8	Intel Corp. 1,39,61,89	Netpage Communications Corp. 1,8	Stratagem, Inc. 84	Zona Research, Inc. 2
Burlington Coat Factory Warehouse, Inc. 17	Dun & Bradstreet 39		Nova Gas Transmission Ltd. 8	Strategic Research Corp. 61	
Calatron Systems, Inc. 24	E-Stamp Corp. 114		Novell, Inc. 1,16	Sun Microsystems, Inc. 1,8	
Calvert Group Ltd. 31	Electronic Data Systems Corp. 78				
Cap Gemini America 39	EFF Atcham NA 68				
Carroll National Bank 39	EMAP 29				
Charles Schwab & Co. 39,45					
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Rules-driven apps can change as fast as business changes

When a company changes its pricing or credit policies, it can take precious time to implement those changes in a critical application. In the past, making these changes required weeks of technical staff programming and application downtime. This was acceptable when policies seldom changed and internal customer service reps were the primary link to the customer. However, with the advent of the Internet and direct, self-service access to business applications on the Web, support for rapid business change is now a competitive imperative.

A new approach to application development, called "rules-driven" development, shows promise as a means of creating applications which can adapt quickly to business change. Instead of embedding business rules and policies within application code, rules and policies are externalized from the application in a rules-base, which can be accessed by many applications and changed easily (by the business analyst) to reflect policy change immediately. This approach minimizes the need for developers to patch or change existing code, which may run the risk of introducing new bugs into working code.

What are business rules?

Business rules are programmatic implementations of the policies and practices of a business organization. For example, business rules would control the following aspects of a business:

- When to offer a discount
- When to restock inventory
- Whether or not to extend credit to a customer and how much to extend
- What configuration is valid for a sales order
- When to escalate a customer problem

Business rules and policies are central to any business operation, and yet are often scattered throughout the organization, across applications, manuals, and in individuals' minds. This makes it very hard to achieve consistency throughout a business and to change rules on a company-wide basis.

The concept of centralizing business rules into a single rules engine allows organizations to react quickly to business change. For example, if customers who earn \$20,000-\$40,000 are better credit risks than those who earn between \$60,000 and \$80,000, a simple entry in the rules-base will change the existing business rule and apply it to all applications accessing the business rule. The rules-base eliminates the need to locate, change, and test all instances of applications which use the rule.

Applications support a rules-driven approach

A number of products on the market claim to support a rules-driven approach. One company, Neuron Data, leads in this area by providing comprehensive, rules-driven development tools for C, C++, and Java. Neuron Data's Elements product line offers powerful, easy-to-use rules engines within a robust development environment. Elements Presenter/J and Advisor/J are new products that provide the essential tools for building adaptive, self-service applications in Java.

Many of the major wins in the "rules-driven" development arena concentrate on three application areas: e-commerce, call center, and financial services. "Changing the knowledge base used to take six to eight weeks. With Elements we can make the same rule changes in 20 minutes," stated one customer, American Greetings. Neuron Data, 1310 Villa Street, Mountain View, CA 94041 Tel: (650) 528-3450, Fax (650) 943-2752. Web site: www.elements.com



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Concurrent licensing dropped

CONTINUED FROM PAGE 1

bother changing the licensing deal? It's a very self-serving discovery on Microsoft's part," said Jeff Tarter, editor of the "Softletter" newsletter in Watertown, Mass. "Microsoft's genius is making it look like they're lowering prices while figuring out ways to creep prices up in ways that are so complicated that people don't notice."

Concurrent licensing allows companies to license far fewer copies of an application than they have loaded on machines or a server.

For example, a company that has 500 copies of Office 97 loaded but only 100 in use at any time might pay for only 100 licenses under Microsoft's Upgrade Advantage Plus. Under Microsoft's plan, metering software must be used. That makes it more complex to run concur-

since it owns so much of the market.

"Unless some other company has a similar product at a reasonable price, Microsoft will make a lot of money on this," Wong said. "There's other products, like WordPerfect, but they're not as powerful or as popular. I need to be able to exchange information with other people, and it's much easier if you both have Microsoft products."

Peter Boit, general manager of worldwide volume licensing at Microsoft, defended the change as something that would help users. He said customers requested it.

"It's not a revenue issue. It's a low-selling product, and customers have been asking for greater simplicity," Boit said.

He said the number of companies affected by the change was in the "single digits" and has been steadily decreasing over the past two years to the point where Microsoft felt it could discontinue the program. To ease the way, Microsoft will help work out new licensing agreements with the few companies impacted by the change, Boit said.

But Welch cited a 1996 Gartner survey that showed up to 62% of the 100 respondents were using some concurrent licensing with Microsoft desktop applications.

"The problem is the corporate community has so thoroughly standardized on Microsoft that they're hostages. [But] it's hard to feel any sympathy — they gave Microsoft the gun, now they're being held up," Tarter said.

Several users said they are still evaluating the impact on their companies.

"I imagine it would be an astronomical amount of money for large companies to add those licenses. When you have to buy for everybody, it's frustrating to

see not many people actually using it," said Jim Marshall, an in-house information security consultant at The Dow Chemical Co. in Midland, Mich.

Frank Mancini, network technical manager at Colonial Savings F.A., said he will be hardest hit — doubling his costs — when it comes to his SQL Server licenses.

Mancini said Colonial Savings should be able to absorb the added costs but that the licensing change could have a real financial impact on other companies.

"How arrogant," Mancini said. "For some companies, the impact could be great enough to justify them reconsidering using someone else's software and unbundling Microsoft."

NOT MUCH CHOICE

But Erwin Berliner, manager of mainframe services at Chevron Information Technology Co. in San Ramon, Calif., said companies don't have much of a choice.

"Obviously, Microsoft's strategy includes being aware that they dominate the market," said Berliner, who uses Microsoft's Workstation and Office. "Such a large percentage of development is done on Microsoft platforms that if people are disgusted, they have to just swallow it and move on because they don't have a lot of choices. There's not too many real options."

Still other users say they are

Competitors ignore Microsoft lead

There are no plans at Lotus Development Corp. or Corel Corp. to follow in Microsoft's footsteps and eliminate concurrent usage of their desktop applications. Rather, spokesmen for the two companies, whose sales run a distant second and third, respectively, to Microsoft, said Microsoft's licensing change might perk up sales.

"We are expecting to see customer migration," said Mark Emond, manager of corporate and education sales programs at Corel.

The Ottawa-based company recently shifted its focus toward large corporate customers from its traditional retail market. Its own concurrent licensing program gives deep discounts to large companies and keeps concurrent usage.

"For Corel and Lotus in particular, as No. 2 and 3, we wouldn't be so arrogant to do that to our customers," said Bill DeStefanis, director of suite marketing at Lotus.

DeStefanis agreed with Microsoft that concurrent licensing isn't that popular, but he said, "there's no cost to me to offer it to my customers. It's just good customer satisfaction."

But will Microsoft customers run to Corel or Lotus as a result of the licensing change? Probably not, said Mary Welch, an analyst at Gartner Group. "Microsoft Office has become middleware in many organizations," she said.

When considering the cost of retooling, redeploying, retraining and rewriting custom applications built on top of Microsoft products, most companies will simply dig deeper into their pockets for the extra cash, Welch said.

— Gordon Mah Ung and Sharon Gaudin

"We have a lot of users not using the software all the time. Now we'll have to buy licenses for everyone. ... Unless some other company has a similar product at a reasonable price, Microsoft will make a lot of money on this."

— C. F. Wong, Bank of Montreal

rent software. But Welch pointed out that those companies that take advantage of concurrent licensing to save money already have their metering software in place.

Under the new policy, once the current licenses expire, companies will have to pay for all 500 copies. The change affects several flavors of the Office suite and applications such as Project.

STRONG REACTION

The reaction from some users was immediate and strong.

"We have a lot of users not using the software all the time. Now we'll have to buy licenses for everyone," said C. F. Wong, a systems specialist at Bank of Montreal in Montreal.

Wong, whose 10,000 users have Windows 95, Office 97 and Internet Explorer, said Microsoft is in the driver's seat,

but Lotus has got to be smiling about this," Marshall said (see related story above).

Overall, Gartner estimates the average licensing fee over five years is from 12% to 15% of the total cost of ownership.

But that doesn't mean it won't hurt.

"It's still a big number, especially for organizations who are going to be faced with this change," Welch said. "I think the questions users should ask themselves is, once Microsoft becomes dominant in the back-office market, will they do the same thing?" □

Oxford Health Plans CFO resigns

By Thomas Hoffman

THE CHIEF financial officer at Oxford Health Plans, Inc. resigned last week, one day after the managed-care company posted a \$78 million loss because of computer-related billing and claims processing snafus [CW, Nov. 3].

But the Norwalk, Conn.-based company responded quickly to its computer problems by naming Kevin F. Hickey, 45, a former vice president of operations at Aetna, Inc., executive vice president responsible for over-

seeing repairs to systems. David Finkel, Oxford's vice president of operations, will report to Hickey.

Andrew B. Cassidy, Oxford's 52-year-old CFO, will remain in his post until a successor is found and may remain with the company in another capacity, a spokesman said.

Oxford has struggled with a Pick-to-Unix migration since last September, but it wasn't until Oct. 24 that the company learned that the computer problems had caused it to overestimate revenue by \$111 million

and underestimate medical costs for its third quarter.

Since then, several shareholder lawsuits have been filed against the company in New York and Connecticut.

Oxford also has hired two external consultants, Computer Sciences Corp. in El Segundo, Calif., and Cambridge Technology Partners, Inc. in Cambridge, Mass., to help with the repair job.

Analysts said it could take a full year for Oxford to review and revamp its claims systems. □





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A black and white photograph of a man wearing a Santa hat, looking through a computer screen. The screen shows a close-up of his face, creating a layered effect. The text "Client/Server" is on the left and "Network Computing" is on the right.

Client/Server

Network Computing

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COMMENTARY

What will we allow Microsoft to become?

By David Coursey

With apologies to Netscape, the issue between the U.S. and Microsoft isn't whether Microsoft did or did not violate a consent decree or whether Internet Explorer is part of the Windows 95 operating system.

The issue is one of politics and policy, not whether Netscape shows up on a Compaq or not. What kind of country do we want?

This is the first I've written on the latest chapter of the U.S. vs. Microsoft saga. And though I'm one of the people Janet Reno is sworn to represent, I'll take Microsoft's side.

Is Microsoft violating the 1995 consent decree? Probably. Could it get its software loaded onto consumer hardware just as easily without violating the decree? Certainly. Does it really matter? No.

Five years ago, I was among those who clamored for the U.S. Department of Justice to break up Microsoft — or at least create a meaningful wall between system software and application development. Where was the Justice Depart-

ment then, when doing something would have changed the course of the industry?

Today's real issue is what we will allow Microsoft to become. And it's not a matter of any law. This is public policy, the answer to the question: What's best for America, her people and their economy?

If we're serious about Microsoft not completely dominating computing, we might create "safe havens," arenas in which Microsoft may not compete. We might legislate Microsoft's support of, say, Unix and the Macintosh. We might change the way bundling is done and

watch closely to make sure Microsoft charges fair prices for its products rather than giving them away and stifling competition.

And speaking of fair pricing, is Microsoft charging fair prices? And if so, how did the company accumulate all those billions? Should that continue, or does the existence of all that money

prove Microsoft is a monopoly throwing excess profits into its new businesses?

Another area of concern is Microsoft the bank, the travel agent, the community newspaper, the television network, the (insert phrase from Microsoft's secret Plan for Global Domination here). This is all legitimate territory for regulation.

But before we act, remember that big media is falling into fewer hands. And not always with good results. How many times can ABC programs promote Disney-this and Disney-that? It takes big money to play in this league, and

Microsoft has the resources to ante up.

I think the idea of Bill Gates owning a TV network or two is a good thing.

Microsoft's specialty is pushing technology, not politics. The concept of Citizen Bill manipulating the news seems unlikely to me. If Microsoft can provide another source of information and entertainment, it's welcome to do so.

At the same time, I don't want Microsoft competing directly in the banking, real estate and travel industries.

Fair disclosure of application programming interfaces and features is the issue the Justice Department really should be hammering.

So Microsoft and Netscape is a wash. Microsoft pricing probably deserves attention, and we may want to limit its penetration into new markets. If we're going to interfere with Microsoft, let's make sure we don't interfere with the spirit of innovation that has propelled the company so far. □

Coursey is a consultant, analyst and editor/publisher of "coursey.com," an online newsletter at www.coursey.com. You can E-mail him at david@coursey.com.



Is it Wall Street or Tech Street?

By David Moschella

Did you notice that almost every story about the recent stock market turbulence had a strong technology slant?

Whether the issue was excessive company valuations, Wall Street trading system capacity, the jitters of individual investors or even the root causes of the Asian Contagion, it was only a matter of time before the discussion came around to the role of IT. What can we learn from this latest gush of publicity?

Perhaps the most encouraging aspect is that technology has been consistently portrayed in a very favorable light. This stands in sharp contrast to October 1987, when so-called program trading was on every demagogue's short list of economic scapegoats. Indeed, program trading was treated then much like Internet pornography is today — there was guilt by association.

This time, however, there was mostly kudos all around. Reporters went gaga over Wall Street's ability to swap more than 1 billion shares in a single day. Sure, there were complaints about how well the online traders handled the vol-

ume, but more traditional brokers didn't fare any better. Indeed, the net effect was to turn everyone's attention to the issue of scalability, a word that suddenly seems everywhere.

More broadly, the two main causes of this year's Black Monday — fear of overvalued stocks and doubts about the sustainability of the Asian economic boom — are closely tied to technology concerns.

Whenever anyone suggests that stocks might be overpriced, they almost inevitably point to the technology sector, with its huge price/earnings multiples. Similarly, when the market tumbled, technology stocks once again led the way. They remain almost synonymous with the word "volatile."

Likewise, the downturn in Asia has technological origins that reach much deeper than the global trading systems that make interdependent markets possible. Investors have lost enthusiasm for

Asia for any number of reasons. But high on the list is the realization that many Asian companies have fallen far behind in key technology-intensive markets. This problem is particularly acute in Japan and Korea (see my Sept. 15 column.) But lest our industry revel too much in self-

importance, just remember that when a big story breaks, computers are simply no match for television.

As the market free fall began, television drew most of the big-name expertise and did most of the opinion-shaping. The Internet primarily was used in offices or by individuals who wanted to see what was happening to their own portfolios. For real-time events, broadcasting can't be beat; when information needs to be presented item

by item, the Web shines.

Perhaps most important, technology played a key role in assuring that what began as a major economic event just as quickly became almost a nonstory — at least in the U.S. In the end, what prevented further falling in U.S. stock prices was investor confidence in the future. Much of this confidence is grounded in the overall strength of the U.S. economy, which derives much of its strength from technology.

Remarkably, information technology thus became a symbol of both volatility and stability — volatility in the sense that one can always argue about just how much technology stocks are worth, but also stability in that the fundamental value of IT itself is no longer seriously questioned. When blue-chip technology stocks dropped, people instinctively began to buy. By defining both the floor and the ceiling, the presence of IT is now inescapable, no matter which way the market heads. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. His Internet address is david_moschella@cw.com.





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The Back Page

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Dispatches & images from the fringes of the electronic frontier

Patent watch

Recently issued U.S. patents
(number, inventor/assignee, date)

Wireless LAN for a portable PC and its peripherals. A low-power, radio frequency network connects a notebook PC or handheld device with its associated peripherals, such as printers and external storage, without using cables. (5,682,379, Norand Corp., Cedar Rapids, Iowa, Oct. 28)

Software that prints the correct amount of postage on an envelope in the form of a typical meter stamp. Memory chips encased in steel buttons hold the amount of postage that has been purchased from the U.S. Postal Service. These can be replenished or replaced. (5,682,318, E-Stamp Corp., Houston, Oct. 28)

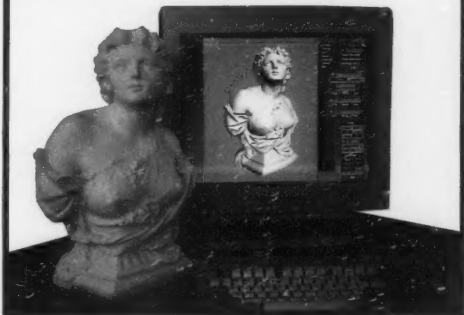
Lightweight and waterproof handheld computing device that operates as a golf scorekeeper using voice-recognition technology. Scores are kept in a database. Data can be sent to a desktop PC or printer. (5,681,108, Alan Miller, Oct. 28)

Source: MicroPatent (www.micropat.com)



DIGITAL CLONING OFFERED

ScanSite in San Anselmo, Calif., can create a three-dimensional computer replica of any body or object via fast and affordable laser scanning. The technology, first used for Hollywood special effects, helps companies design prototype products.



Perils of home offices

A Hewlett-Packard contest seeking the best PC horror story yielded the tale of Tina Koenig, whose home-based company, Cybercalifragilistic Gifts, sells chocolate diskettes. Her youngest child stuffed one into the "A" drive, but Tina removed it before a meltdown occurred.

Random acts of lava light

Computers are just too logical to produce unguessable, random numbers for cryptography. So these Silicon Graphics scientists—Landon Curt Noll, Sanjeer Sisodia and Robert Mende (from left)—have developed a random-number generator based on digital images of the Lava lamp (<http://lavarand.sgi.com>). Are mood rings next?

Inside Lines

Blowing a fuse

Last week's announcement by Allaire and NetObjects that they would link their Web development tools probably short-circuited more than a few spell-checkers out there. The companies plan to tie Allaire's Cold Fusion Web development tool to NetObject's Fusion 2 visual development package via the Fusion2Fusion Connectivity Kit. Fusion2Fusion was developed by yet another vendor, Fundere. All of that led one analyst to remark that a better name for the product would have been "Confusion."

What's next? The Dongle Index?

First came the de Jager/Year 2000 Index, an options index named for year 2000 guru Peter de Jager that was designed to measure the performance of stocks for vendor companies that offer millennium programming services and products. Now there's The Disk Drive Index from the American Stock Exchange in New York. It was designed to measure the performance of a cross-section of companies involved in designing and manufacturing data storage devices for computers.

Outlook ship date remains cloudy

Look for Microsoft this week to officially announce the next version of its Outlook E-mail and groupware client, which will have improved Internet support and several ease-of-use improvements, sources said. Of course, the announcement doesn't actually mean you can get your hands on the product. Outlook 98 is due sometime in the first half of next year.

ATM: Opening at a cineplex near you

Tippett Studio used Asynchronous Transfer Mode (ATM) switching equipment from Fore Systems Corp. to bring alien insects to life in the movie *Starship Troopers*, which opened last week. The ATM equipment was used primarily for special effects work needed to create images of the marauding, brain-eating alien insects. Tippett Studio used ATM to create more than 220 shots involving the warrior bugs for the feature-length science fiction epic.

Scalability Day, part two

Microsoft's Scalability Day in New York in May didn't exactly convince everyone that Windows NT had overcome its scalability woes. So the Redmond, Wash., company will do it again: Dec. 2 in the Big Apple. This time, Microsoft will have close partner Digital in tow. Bill Gates and Digital CEO Robert Palmer will show off the forthcoming Windows NT 5.0 operating system and Back Office applications, including SQL Server, running on a Digital 64-bit Alpha platform. Sources said the two companies also will showcase eight-way clustering and 16-way symmetric multiprocessing for Windows NT. The ship date of that has been narrowed down to the second half of next year.

Jasmine still isn't flowering

The wait goes on for Computer Associates' new Jasmine object database. CA delayed Jasmine for a third time after the software last month flunked what was supposed to be a final round of quality-assurance testing. Company officials said the tests turned up bug problems in a variety of areas that need fixing before the database can be declared up to snuff. Jasmine now is targeted for release next month, which would put it a full year behind CA's original late-1996 shipment date.

Another day, another keynote... another attack by Sun CEO Scott McNealy. At a conference last week in Berlin, he goaded attendees to launch a barrage of E-mail at Microsoft CEO Bill Gates to demand purity of the Java programming language. McNealy spelled out his rival's address and urged his audience to "flood his mailbox." Shouldn't there be a law against inciting network violence? Skip the spam, but pass your rumors and news tips instead to News Editor Patricia Keefe at (508) 820-8183 or at patricia_keefe@cw.com.

November 1997

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Power News1, 6

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Extend Your Datacenter Uptime

New Solutions2, 4, 11 17-18

New ProtectNet® for ISDN

Introducing

MasterSwitch™

Power Management;

PowerXtend® for

Netfinity;

New! PowerChute® plus for SCO Unix



Rave Reviews3, 5

APC's Web Software is Rated a Winner

APC in Action13



"It is great to know that there is a quality product protecting our expensive electronic equipment, as well as a company that stands behind their promise."

ProtectME!® with APC News...14

APC Smart-UPS® Protects Ideal
"Time Machine"

Power Quality Update15

Are You Protected from El Niño?

Service Superstar16

"Your willingness to resolve this problem so quickly has enabled me to resolve this situation expeditiously for my client."

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Editor
Art Director
Design

Chris Carroll
Philip Hawthorne
Cheri A. LaQuerre
Shawn Cournoyer
Russell F. Desjarlais
Martha Badigian (APC in Action)

We love to hear your feedback: Please send comments and questions about Currents to:

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Phone: 401-789-3710
Phone: 888-289-2722 ext. 8182
E-mail: apccurrents@apcc.com

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How to Contact APC

APC North America

Corporate Headquarters
132 Fairgrounds Road
West Kingstown, RI 02892
Phone: 888-289-2722, ext. 8182
Fax: 401-789-3710
E-mail: apccinfo@apcc.com
PowerFax: 800-347-PAAX

APC Europe

APC European Headquarters
APC Ireland
Ballybrit Business Park
Galway, Ireland
Phone: (+353)91 702000
Fax: (+353)91 756909

APC France
Phone: +33 1 41 90 52 00
Fax: +33 1 41 90 52 80

APC Balkans
Phone: +33 1 41 90 52 00
Fax: +33 1 41 90 52 80

APC Benelux
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Fax: +31 183 628 821

APC Czech & Slovak Republic
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Fax: +42 2 683 7680

APC Germany
Phone: +49 89 51417-450
Fax: +49 89 951417-100

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Fax: +36 1 2696433

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Fax: +39 2 29 40 55 15

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Fax: +48 22 666 00 22

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Fax: (+7 095) 929 91 80

APC Spain
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Fax: +34 3 4127125;
+34 3 3177646

APC Turkey
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APC UK
Phone: +44 1 753 511022
Fax: +44 1 753 511033
Technical support: 0800 132 950

APC Latin America

APC Latin America Headquarters
132 Fairgrounds Road
West Kingstown, RI 02892
Phone: 401-789-5735
Fax: 401-788-2716
WEB: <http://www.apcc.com>
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APC Argentina
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APC Middle East
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Fax: +44 181 769 1963

APC Asia Pacific

Asia Pacific Headquarters
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Level 4, 20 Berry Street
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APC India
Phone: +91-44-433-1124
Fax: +91-44-434-1464

APC Indonesia
Phone: +6221-650-0813
Fax: +6221-650-7427

APC Japan
Phone: (+81) 03-5434-2021
Fax: (+81)03-5434-2022
Toll Free: 0120-80-60-90

APC Korea
Phone: +82-2-501-6492
Fax: +82-2-501-6369

APC Malaysia
Phone: +603-735-8870
Fax: +603-732-9069

APC Philippines
Phone: +63-2-8132662
Fax: +63-2-892-2448

APC Singapore
Phone: +65-337-4462
Fax: +65-337-2774

APC Taiwan
Phone: +886-2-755-1945
Fax: +886-2-755-1946

APC Thailand
Phone: +662-264895-6
Fax: +662-264288-4

www.apcc.com

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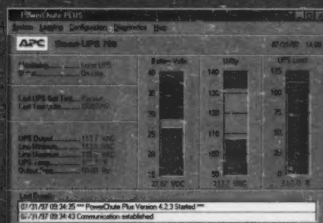
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APC
AMERICAN POWER CONVERSION

See New PowerChute® *plus*



New PowerChute *plus*
See advanced features of
this newly enhanced power
management solution at
Comdex booth #L2463

New version includes:

- Monitor power with
Windows NT®
Performance Monitor
- New Remote
Configuration Feature
- Receive event notifications
through industry-standard
SMTP mail
- Enhanced FlexEvent™
Configuration
- Improved User-Interface

APC Trade Show Calendar

DATE	SHOW/LOCATION	BOOTH #
National Tradeshow:		
Nov. 17-21	Comdex - Las Vegas	#12453
Jan. 20-22	Comdex PacRim/ Vancouver	#1820
Jan. 26-29	ComNet - Washington, D.C.	#375
Feb. 11-12	Internet Expo - San Jose	#1145
Regional Tradeshow:		
Oct. 15-16	ITEC Expo - Phoenix, AZ	TBA
Oct. 15-16	ITEC Expo - Raleigh, NC	TBA
Oct. 29-30	Netcom - Nashville, TN	TBA
Nov. 5-6	Computer Office and Technology Jacksonville, FL	TBA
Nov. 5-6	ITEC Expo - Pittsburg, PA	TBA
Nov. 12-13	ITEC Expo - Columbus, OH	TBA
Nov. 12-13	ITEC Expo - Philadelphia, PA	TBA

Need tickets? Call 888-289-2722, ext. 8024

FREE STUFF FREE STUFF

More FREE STUFF
on the
APC PowerPage™!

**See inside
back cover.**

FREE STUFF FREE STUFF

The APC Reliability Challenge: "With an APC UPS, We're All Winners."

Since the first APC UPS rolled off the production line in Billerica, Massachusetts in 1984, APC has worked its way to the top of the UPS category, instilled confidence and peace of mind in over 8,000,000 users and captured over 100 industry trade awards for reliability innovation and customer satisfaction. No other UPS manufacturer has even come close to matching that track record.

APC Defines Reliability

In May of 1997, APC offered up the reliability challenge to its customers. Known worldwide for product reliability, the company believed the truest test of that reliability would be to ask those who use an APC UPS to see just how long these soldiers in the war against bad power have been doing their duty. In other words, how long will a customer trust their valuable computer equipment to an APC UPS?

So, how many years can you depend on your APC UPS? The results of the reliability challenge were clear. In an industry where the average product life expectancy is six months to a year, APC units have regularly done their job for over a decade*. In spite of continuous product innovation and product improvement, the reliability of the first Smart-UPS has never become obsolete. An APC customer could easily have used the same Smart-UPS to protect four or five generations of servers or workstations. Customers do buy new APC UPS units, but typically they are purchased to support MIS growth, protect a new home office, entertainment center or even a fish tank, not to replace an existing unit.

Trade-UPS: The Latest Solution at Bargain Prices

Still, many APC customers want the latest features and benefits of the newest UPS units without having to completely reinvest in a new unit. They say, "the old one works just fine, after all!" To meet this growing need, APC decided to pay customers for the years of reliable service left in their units through a unique program called Trade-UPS. The program allows customers to trade in "old reliable" for a brand new unit at a significantly discounted price (up to 46%). Usually the trade is prompted by a need for the latest power management solution or network OS and server management platform integration. Sometimes, as the Reliability Challenge clearly demonstrated, customers tend to remain faithful to their APC units longer than even the APC product engineers' could have expected. In fact, the winner of the 1997 Reliability Challenge was one such customer.

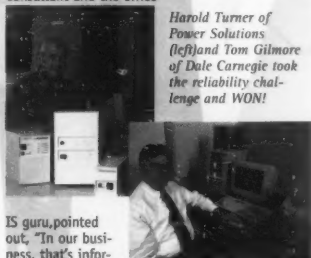
*Battery life varies according to use. Average 3-6 years, but batteries can be replaced at a fraction of the cost of the unit. For more information about battery replacement, visit <http://www.apcc.com>

And the Winner is...

1984: Ronald Reagan was in the White House, disco was finally dead, and while most of America was learning to "Just say no," a small group of engineers in Massachusetts decided to help computer users "Just say no to bad power." Although the 1997 APC Reliability Challenge unearthed hundreds of vintage but still working APC units, the 1984 750XT Plus - literally one of the first units ever built by APC - entered by Harold Turner of Computer Power Solutions in Tennessee, took the prize.

Harold received the still-operational unit in a Trade-UPS from Performance Training Associates, a sponsor of Dale Carnegie training, in Massachusetts when they traded it in for a Smart-UPS 1400. Dale Carnegie, a worldwide force in corporate training, had been using the unit to back up the networked PC that contains its student enrollment and billing information.

As Tom Gilmore, a Dale Carnegie Training Consultant and the office



Harold Turner of Power Solutions (left) and Tom Gilmore of Dale Carnegie took the reliability challenge and WON!

IS guru, pointed out, "In our business, that's information we can't afford to lose. We purchased the unit, it did its job for a long time. It's not often you get a piece of hardware that gives you zero problems with no maintenance."

Rodger Dowdell, APC president, and one of the engineers responsible for 1984 APC 750XT Plus, was all smiles at the news of the unit's performance. "We strive for reliability, but for this one to protect and serve for nearly fourteen years without a single problem is amazing. We expected five to seven years of service, and got double that. I can't wait to see what our newer designs can do!"

Harold Turner, the reseller who submitted the unit received in trade, is a power VAR who specializes in power, voice, and data line power protection for customers worldwide. He has been a dedicated fan of APC products since he evaluated a few APC units back in 1988, thinking this was the "product of the future." Since then, APC has helped him make "customer service," his number one priority, a reality. And so, Harold Turner and Tom Gilmore both answered the Reliability Challenge.

Because the entry was a joint effort, APC has declared Harold Turner of Computer Power Solutions and Tom Gilmore of Dale Carnegie co-winners. Harold and Tom will both fly FREE to APC to officially decommission the old unit. Each then gets to assemble his very own new Smart-UPS. Afterward, they'll enjoy two vacations for two on beautiful Block Island.

New Units from APC Trade-UPS Program Protect Your Investment

How does the program work?

You can trade in any old UPS units for the latest APC UPSs (even one of our competitor's units you use for a doorstop because it no longer works!). Just visit APC at <http://atradeups.apcc.com> to order your new units, and when they arrive, send your old APC or other vendors' UPS systems back to APC in exchange.

Who should use Trade-UPS?

APC's Trade-UPS program gives you

- a cost-effective way to upgrade your existing UPS units
- an easy way to enhance your power protection with new systems or technologies offered by APC without the bite of a complete reinvestment
- the quickest way to protect your valuable hardware with a new APC unit and a full warranty instead of a repaired or reconditioned unit

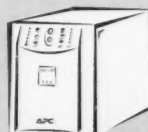
Best of all, you don't have to currently own an APC UPS to take advantage of the program. Even units from other vendors can help you cut the cost of buying the world's most reliable power protection.

New APC UPSs up to 46% OFF!

Trade-UPS provides new units with full two-year warranties at a substantial discount. Buy via the Trade-ups program and your systems are never out of warranty. APC disposes of or recycles the old UPS units and batteries - even those not originally manufactured by APC - so you can be sure your old UPS will never be a threat to the environment. Saving yourself that headache alone makes Trade-UPS worthwhile.

Visit the APC Trade-UPS page today, and make your exchange online! Details about eligible units, costs and purchase options are available at:

<http://atradeups.apcc.com>



ProtectNet® for ISDN Continues APC's Technological Commitment

APC continually stresses the concepts of "bulletproofing" and "back door protection" of computer systems. Surges can damage motherboards, network interface cards and modems, just to name a few valuable pieces of equipment. Without protection at every point where faulty power can tamper with your electronics, you are not yet "bulletproofed."

Fortunately, APC develops products to fit with every advancement in computer and communications technology. Most recently introduced is the ProtectNet for ISDN, protecting "Integrated Services Digital Networks."

According to Bell Communications Research, Inc., ISDN is "a design for a completely digital telephone/telecommunications network to carry voice, data, images, video, etc, at high speed by sending digitally-encoded signals."

These ISDN signals are usually sent over fiber lines but can work on normal phone lines made from copper wiring. Because ISDN lines carry data at such a greater rate than regular phone lines, more data, at any given moment, is in danger of being corrupted by bad power carried on the ISDN lines. The ProtectNet for ISDN can protect everything from today's more "intelligent" telephones to an ISDN equipped communications terminal.

The ProtectNet for ISDN joins an ever-increasing list of APC ProtectNet products that provide "back-door" protection for data terminal or POS equipment, printers, plotters or phones, plus many other connected devices. By closing all paths to problems, the ProtectNet family effectively bulletproofs your system, even from problems created by the network itself.

Guaranteed Protection



With a lifetime product warranty, ProtectNet will be the last dataline surge protector you'll ever buy (until your network grows)! What's more, your protected equipment is also covered.

ProtectNet features a unique "Double Up!" Supplemental Equipment Protection Policy. APC will repair or replace equipment properly connected to and protected by an APC AC line and dataline solutions in the event that it is damaged by a lightning strike or surge, up to \$50,000. (See policy for details. US and Canada only.)

If you would like help developing a bulletproof power protection strategy for your network or advanced workstations, call the toll free APC Customer Service Hotline.



Protect your valuable ISDN phone equipment and modems with a combination of the latest ProtectNet and APC PowerShield™, a UPS designed specifically for use with ISDN equipment. Call the toll-free APC customer service hotline for more information.

Letters to the Editor

magazine that promise free stuff like posters and t-shirts. Why not take the time to fill out that very card right now, and send it back to us today! You can also visit <http://xtreme.apcc.com> and give us your story online. (Actually, you may want to read some other responses first just for inspiration.) Thanks to all those here who responded and we hope to hear some new stories soon!

"Thank you for keeping good connections with your clients because, in these days, it's good to have feedback from your clients whose suggestions can help improve your already excellent products. I personally had bought my UPS before I even had made my final decision about which PC I would buy. I must say it's a decision I haven't regretted."

In an area where voltage varies from 180 - 250v on a daily basis and where, as you say, blackouts and spikes are usual things, my PC has been running without as much as a hiccup. I'm even considering buying a Line-R for my Hi-Fi system! I shall recommend APC products to anybody who asks me about them.

Don't let any bad influence affect your computer."
— Miodrag D. Miskov, Kac., Yugoslavia

"Hi...sorry...Hello. I'm one of many APC UPS users and thank God for having one because my Back-UPS 600 has saved my work many times. One night, I was working on my PC when the power shut off. I kept working. Then it came back.

After a minute, it became so weak that the light and refrigerator could not work... while I kept working, thanks to an APC UPS!"

— M. Nour Kazkaz, M.D. Student, Lattakia, Syria

"It was a dark and stormy night over our little southern French village when I awoke to a gentle, but constant, 'Beep...beep...beep.'"

Tugging at my husband, I accused him of maliciously setting his radio or watch alarm for the middle of the night. Then it stopped.

Only the next morning, when we found all of our digital clocks blinking zeroes, did we realize that it was the UPS doing its job in the wee hours of the night."

— Linda Bigelow, Salot-Jeanet, France

"Blackburn had a major power outage on March 18, 1997, but did I worry about our fileserver?"

Nope. Just press a key and you're back up and running within 5 minutes; faster than the phone system or even BT. Thanks. You make my life a lot easier."
— Bob Ray, Consultant, Training 2000 Ltd., Blackburn, England

"English isn't my basic language and I don't understand many, but APC's Back-UPS 600 is my basic UPS and we understand each other."

— Nesko Dragisic, Lead System Engineer, JP Djerdap, Kladovo, Yugoslavia

We, at Currents, love receiving feedback from APC users around the world. It gives us a better picture of how our company is truly perceived by the people who matter to us the most: our customers! It also lets YOU know that we really do pay attention to those cards in the back of the

"We were using non-APC UPSs. When we came to dispose of the batteries, it was a nightmare finding out the details for environmentally safe disposal. With APC, we have always been able to find out the details we've needed."

— Nigel Lewis, Computing Manager, Buckland Paper Mill, Dover Kent, England

The battery change article was published in a previous issue of Currents. We do our best to keep our customers happy and our readers informed. — Ed.

"I recently moved into an old house. It wasn't until I plugged my APC Back-UPS Pro 1000 in that I found that most of the outlets in the house had no ground. If it wasn't for the 'wiring fault' light on the back, I may have never known about this dangerous problem."

— Morgan Pelletier, President, Penguin Computing, Saint John, New Brunswick, Canada

APC PowerXtend™ for Compaq Insight Manager Eclipses CIM-Proprietary Functions: Try it FREE Today

APC has just released PowerXtend for Compaq Insight Manager. Customers using Compaq Insight Manager (CIM) to manage Compaq servers can now manage power at all Windows NT and Netware servers – directly from the CIM console. Because of the variety of server products available, APC has developed PowerXtend, customized power management plug-ins for server management platforms, i.e. Compaq Insight Manager, IBM Netfinity, Intel LANdesk Server Manager, and HP NetServer Assistant.

Any Server, Any Management Platform, One UPS

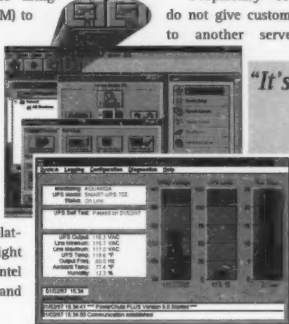
By accommodating all server management platforms, APC can blanket virtually any network with power protection, no matter what brand of server is used. APC UPSs maintain cross platform compatibility via power management and monitoring software without requiring a significant hardware upgrade, a fact critical to all cost conscious clients expanding their net-

work, whether now or in the future.

Proprietary UPSs, on the other hand, do not give customers the flexibility to switch to another server vendor's management

2. Install PowerChute plus on the NMS where Compaq Insight Manager is installed.

All software necessary to manage NetWare and NT servers is free on APC's web site. Upon



"It's terrific to have APC's power management tools integrated into one management console."

- Desmond Banks, Compaq customer and Senior Systems Programmer at Kaiser Permanente

platform and maintain integrated power management support.

APC Smart-UPS' with PowerChute plus also gives you the peace of mind that comes with installing an industry leader with a proven track record of being able to quickly adapt to the

installation PowerChute plus inserts two buttons onto the CIM screen. Customers can click on the APC NT and APC NW buttons to manage both Windows NT and Netware servers respectively. An intermediate screen provides a list of the remote servers running PowerChute plus. After selecting a server from the list, the PowerChute plus screen will appear. Customers will receive 100% of PowerChute plus functionality directly from CIM, i.e. UPS self-test scheduling, diagnostics log, unattended shutdown, scheduled shutdown, application saving, automatic reboots, FlexEvents, etc.

CIM screen includes "APC" battery buttons so you can launch PowerChute plus directly from CIM. Software is available FREE on APC's PowerPage: www.apcc.com

needs of its clients, whether they own a Compaq Proliant, Prosignia, or any other brand of server.

How PowerXtend Works with CIM:

1. Install PowerChute plus and PowerXtend on all remote Windows NT and Netware Compaq servers.

Byte Reviews New APC Symmetra™ Power Array™

BYTE Byte Magazine recently gave a favorable review of Symmetra, the first product

in APC's new Power Array line.

In Byte's "Eval" section, the Symmetra received the maximum available five (5) stars (Outstanding) in the magazine's technology rating.

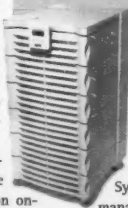
Byte poetically begins the review, "Hell hath no fury like a network administrator after a power outage. Fortunately, a UPS that offers both scalability and N+1 redundancy has arrived."

So what defines APC's Power Array? APC made sure its first UPS over 5 kVA was loaded with features, as the article duly notes. The product line has five models ranging from 5kVA to 16 kVA with redundancy starting at 4 kVA.

The Symmetra, with 16kVA of full output, "operates much like a server or storage device with RAID. Using double conversion on-line technology, all the modules in the Power Array run in parallel and share the load evenly."

★★★★★
A compelling UPS solution at a competitive price. Fortunately, a UPS that offers both scalability and N+1 redundancy has arrived.

- Byte magazine



the review points out, illustrating the key differentiator between Power Array and any other protection. Byte's product review concludes, "These features, combined with Symmetra's multiple configuration and management options, constitute a compelling UPS solution at a competitive price."

PowerXtend plug-in v3.0 vs. Compaq Power Management Software (CPM) v1.0

FEATURE / BENEFIT	APC	COMPAQ
UPS self-test scheduling	Yes	No
No need to worry about remembering to test UPS		
Diagnostics data log	Yes	No
Helps pinpoint power problems		
Power mgt. for non-Compaq servers	Yes	No
Manage power at all remote servers		
Remote UPS configuration	Yes	No
Quick adjustments to changing environmental conditions		
Microsoft SMS support	Yes	No
Remotely install software to SMS compatible computers		
Power software experience (years)	9	<1
Field-tested and time-tested reliability		
Launches directly from CIM	Yes	Yes
Quick access during emergencies		
Develops its own power mgt. software	Yes	No
First-hand knowledge and superior support		
Lifetime software support	Yes	?
Backwards compatible UPS software	Yes	No
APC software upgrades do not require a UPS upgrade		
Microsoft Back Office certification	Yes	No
Ensures compatibility and security with Back Office suite		
Best of Breed UPS equipment	Yes	No
Proven reliability backed by exceptional service, support and warranty		

APC Support and Service Garner Words of Praise

MicroData Group, Inc. is a Boston consulting firm whose mission is to "assist clients in effectively leveraging computer technology to solve real-world problems and achieve their organizational goals," according to their web site's welcome screen. MicroData Group Inc. specializes in three primary areas: Networking, Database Design and Publishing.

MicroData Group, Inc. shares a similar philosophy of APC by writing that, "...the need for reliable and user-friendly networks that enable people to work together, share, and communicate information is now a necessity rather than a luxury." The company's message continues, "We have a tremendous depth of experience in addressing today's technology needs - not needs of the past. We draw on over 40 combined years of experience with almost all of the relevant products in the industry including Windows, Windows 95, Windows NT, DOS, Macintosh OS, UNIX, OS/2, and NetWare as well as others."

One employee of MicroData Group, Inc. was kind enough to acknowledge the professionalism of an APC employee:

Written to Cyndi Cunningham on May 22, 1997:

Dear Cyndi,

I would like to thank you for assisting me in diagnosing the APC UPS anomalies we were experiencing on May 2, 1997. I have rarely dealt with such a helpful and knowledgeable support professional. I appreciate the rapid turnaround time you were able to arrange for us by cross shipping this damaged UPS for my client. Your willingness to resolve this problem so quickly has enabled me to resolve this situation expeditiously for my client. My client experienced very little down time and I was able to confidently plan the installation of the replacement unit for our next service day. With your support on this issue we

were able to efficiently resolve this problem. Our client was very pleased with our service and turnaround time.

"Your willingness to resolve this problem so quickly has enabled me to resolve this situation expeditiously for my client"

— Steven M. King
MicroData Group, Inc.

You made all of this possible. We have sold over seventy-five of your units and we will continue to recommend them as long as support professionals like you are on the job to back us up.

Thank you again for your most excellent support and service.

Sincerely,
Steven M. King
MicroData Group, Inc.
Topsfield, Massachusetts

New MasterSwitch™ Saves Time and Support Costs



MasterSwitch™ E515 network manageable power distribution unit (PDU) gives the network administrator complete control over the power to connected equipment. From anywhere on the network, administrators can use a network management station (NMS) or Web browser to power, de-power or reboot equipment. MasterSwitch™ cuts service costs and eases your power management burden with these benefits:

- **Web control:** Seamless integration into Web-based management strategies. The first power switching device featuring embedded Web management.
- **SNMP control:** Network manageable by SNMP to integrate with native SNMP management platforms.
- **LAN Connectivity:** Built-in Ethernet interface for direct connection to the customer's LAN.
- **Eight channels of manageable power:** Eight independent power channels for complete and flexible management of connected equipment. MasterSwitch can be used with or without a UPS.
- **Power-up sequencing:** Users can configure the sequence in which power is provided to separate, connected loads at startup.
- **Control UPS power output:** Wherever you use an APC UPS, you can use MasterSwitch™ to power down connected equipment on an outlet by outlet basis to conserve battery back-up power.
- **Built-in serial port:** Serial interface for offline configuration and diagnostics.

APC MasterSwitch™ provides complete Web and SNMP management and control of your network's power. The MasterSwitch™ E515 network manageable power distribution unit (PDU) gives the network administrator complete control over the power to connected equipment. From anywhere on the network, administrators can use a network management station (NMS) or Web browser to power, de-power or reboot equipment. MasterSwitch™ cuts service costs and eases your power management burden with these benefits:

MasterSwitch™ reboots remote servers, internetworking equipment or modem banks to prevent service calls. MasterSwitch™ gives you complete, remote control of eight independent power channels, and ends the frustration of locked-up servers and wasted management time. Call NOW for free information.

New SurgeArrest® Rack-mount

Network SurgeArrest® Rack-mount offers the same premium protection against power surges provided by the rest of the Network SurgeArrest line. The configuration includes:

- 9 outlets total, 1 "Always on" outlet for devices that require constant power
- Multi-positional mounting bracket provides real installation flexibility (vertical or horizontal installation) Even zero U mounting!
- Guarded Master On/Off switch to prevent accidental "turn-off"
- Extra long 15 foot power cord to reach a distant receptacle
- Cord management to help organize power cords
- "Plug pull protection" brackets to prevent accidental plug removal



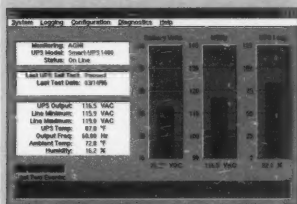
InfoWorld Hails Latest PowerChute® plus

InfoWorld magazine reviewed PowerChute plus 4.3 for NetWare (beta) in its July 7 issue, introducing the software as "another tool to ease the process" for "NetWare administrators who are migrating networking management tasks" to NDS.

PowerChute plus 4.3 for Netware lets users monitor their APC UPS attached to a NetWare 4.x server via NWADMIN snap-in. Users can monitor UPS status without loading the management console, check to see if the

"Other vendors should follow APC's lead in this regard and implement similar... NDS integration."

— InfoWorld Magazine



UPS is on battery, and gather additional information via the PowerChute NetWare Loadable Module (NLM).

"Disconnecting the UPS from the power outlet caused an alert to be generated by the NLM, which was reflected by the snap-in almost immediately," the article recounts.

"Because the UPS state is stored in NDS, there is no need for SAP broadcasts to be used with PowerChute on NDS networks," the magazine states. "For large, distributed organizations, this is definitely a plus."

"Users can be given read permissions to the UPS object in the NDS tree without assigning wholesale administrator rights throughout the organization."

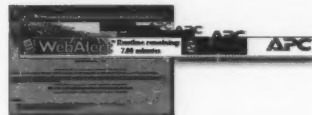
The review concludes that, "...it is convenient to have a UPS that supports NDS. Other vendors should follow APC's lead in this regard and implement similar...NDS integration."

PowerChute plus 4.3 for Netware (beta) will be bundled with APC Smart-UPS products and will be available for download from APC's Web site (<http://adisk.apcc.com>).

InfoWorld Rates APC's Web Software a Winner

INFO WORLD

APC recognizes the importance of integrating applications into the internet and the ease of use of the World Wide Web and has recently been lauded for its web-based power solutions.



The company was featured in InfoWorld magazine where its WebAgent™ and WebAlert™ 1.0 software gained favorable reviews.

Essentially, WebAgent and WebAlert allow users to monitor their UPSs over the Web. Both pieces of software are expansions to APC's already widely-used PowerChute products.

"Monitoring your network's uninterruptible power supply (UPS) has never been easier..." InfoWorld's review begins.

Both WebAgent and WebAlert run on Microsoft's Information Server and Netscape's Enterprise Server and both can be run on Microsoft Windows NT 4.0. WebAgent can also run on Windows NT 3.51.

"Seamless integration and ease of use make this Web-based duo a must-have for network managers..." the article continues.

The author explained how WebAgent allows a user to check on UPS status on an NT server. A user could also check an APC Smart-UPS™ status if their network has NT-based nodes.

"The status-checking worked wonderfully," InfoWorld writes, "All of the data fields had good help functions attached so you can easily figure out what the numbers mean."

This was all eloquently summed up: "the WebAgent component lets the manager manage."

The advantages of WebAlert, according to the article, are its ability to warn end-users of power events via the World Wide Web. WebAlert notifies users of when the UPS is running on batteries and also reports when the server will shut down due to a power outage.

"WebAgent's simplified monitoring views and WebAlert's effective warning capabilities make this combination a winner for system managers using PowerChute plus 5.0 for Windows NT," the magazine offers.

Among the APC software duo's pros listed by InfoWorld were clean installation, smooth operations and the capability to monitor and warn users via the internet. The magazine could not find any significant cons.

"If I were shopping for a new UPS," the author writes, "I'd give serious thought to investing in an APC Smart-UPS to take full advantage of WebAlert and WebAgent functions."

APC WebAgent and WebAlert 1.0 can be downloaded from APC's web site (<http://adisk.apcc.com>) for free, as can the upgrade to PowerChute plus Version 5.0).

Both pieces of software are also bundled with APC Smart-UPS products.

"Seamless integration and ease of use make this Web-based duo a must-have for network managers..."

— InfoWorld Magazine

Visit APC's Currents on the Web and tell us your story of how an APC product helped you through an EXTREME situation.

All those who submit stories before December 1st will win an APC T-shirt.

Then, on December 15th we'll draw a name from the entries and that lucky person will win a FREE APC Back-UPS® Office.

APC Power Solutions Extend Your Datacenter Uptime

The computer traffic through your datacenter reflects the very life of your company. Each exchange is like one beat of your heart, sending vital information throughout connections like the blood through your veins.

APC has created products (Matrix™ and Symmetra™) and services (PowerAudit™) for your datacenter that protect the heart of your business. You've invested thousands of dollars into clustered servers and RAID arrays. Any business that neglects effective and comprehensive power protection is reading its own economic death sentence.

According to Contingency Planning Research, poor power quality can have detrimental effects upon business sectors as varied as finance, media, retail and transportation.

For a company involved in airline reservations, downtime could result in \$90,000 per hour being lost. Lost sales from a home shopping network add up to about \$110,000. Finally, a financial brokerage house, if subjected to the problems of unreliable power, could stand to lose \$6.5 million over one hour's time. Imagine what this means if you're doing business on the web.

Matrix-UPS™: Smart Protection, Obviously

Matrix was built for the 3 to 5 kVA range (between 2250 and 3750 watts). It provides modular, manageable, APC-reliable, 100 percent uptime. Plus, there's the added benefits of high-reliability and low operating costs which are bound by APC's commitment to the customer.

Another advantage of using Matrix is that it is expandable. The unit is made up of an isolation module, an electronics module, and SmartCell™ battery packs. It's these SmartCells that help provide maximum datacenter security.

The electronics module is "hot-swappable," which means, you can swap out the module while

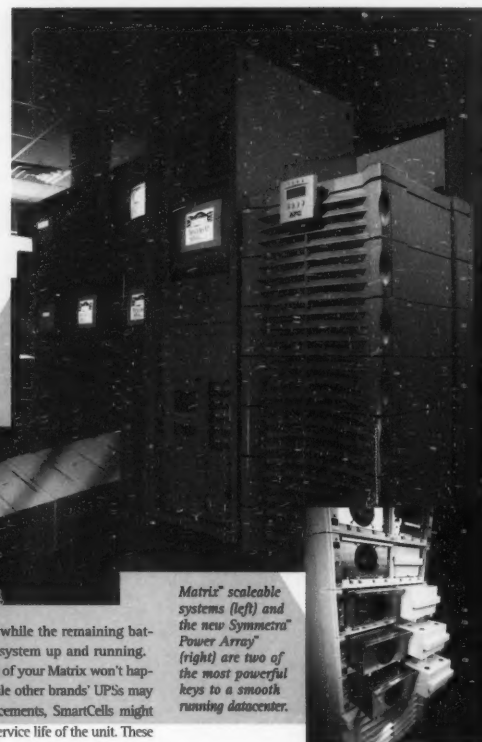
the protected system is still up and running. The batteries are also hot-swappable, and additional battery packs can be added as needed for additional runtime.

Many other brands connect their UPS batteries in a series. When one of their batteries fails, the rest are all rendered useless. SmartCells are connected in parallel. If there ever is a failure, it can be isolated to an individual, self-diagnosing "block" which can easily be



"hot-swapped" out, even while the remaining batteries keep the protected system up and running.

Swapping batteries out of your Matrix won't happen very often. In fact, while other brands' UPSs may require two or three replacements, SmartCells might need only one during the service life of the unit. These extraordinary batteries last longer because they operate at room temperature. Eight SmartCells together provide two hours of instantaneous back-up power.



Matrix™ scalable systems (left) and the new Symmetra™ Power Array™ (right) are two of the most powerful keys to a smooth running datacenter.

Datacenter Power Availability and Flexibility Analysis

UPS DESIGN OPTIONS	FIXED	HOT-SWAPPABLE	HOT-SWAPPABLE AND MODULAR
SHUTLE POINT OF FAILURE			
FAULT TOLERANT			Matrix-UPS
REDUNDANT			
POWER ARRAY (continuous and fault tolerant)			Symmetra

Higher
Availability

Greater Flexibility

down, and increased uptime through custom power management and environmental monitoring (with optional Measure-UPS II).

SmartSlots give you even more options to keep your datacenter safe. Are high temperatures threatening your hardware? There's a SmartSlot unit to connect into your Matrix to tell you so. Do you need to remotely shut down your systems? Insert a Call-UPS II. Do you want to guard against unauthorized access into the datacenter? There's a SmartSlot accessory for that too.

Matrix has been designed for multiple servers. It supports interfaces to all major midrange operating systems including OS/400 and VAX/VMS as well as LAN and WAN systems such as NetWare and Windows NT.

Of course, SmartCells are only part of why Matrix will be the right power protection for your datacenter. A control panel mounted on the front of the unit provides a wealth of operating data and power event status. Virtually all UPS functions can be controlled via this front panel.

APC's award-winning software, PowerChute™ plus, is included with Matrix-UPS to allow automatic safe shut-

See "Datacenter Solutions" on page 16

Don't you have something better to do?

In business-critical network environments, the last thing you need to worry about is server reliability.

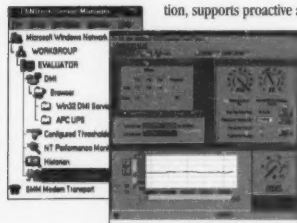


Let's face it. Whether you're an IT manager, LAN administrator or power user, if your business means business, server uptime is the only choice. PC servers need to be up and running - period - even if they're in demand at 3 a.m. on Sunday.

Intel and American Power Conversion give you the optimal solution for increasing server reliability. APC Smart-UPS®, APC PowerChute *plus*™ and Intel LANDesk Server Manager products meld power protection, power management and server management for a best-in-class uptime solution.

Intel LANDesk Server Manager products provide proactive management and emergency recovery tools to maximize business-critical server uptime. A central LANDesk Server Manager console performs real-time monitoring of critical parameters on any Intel-architecture server running Microsoft Windows NT or Novell NetWare. Alerts notify you when a server reaches predefined thresholds.

Intel LANDesk Server Manager Pro, a comprehensive hardware/software solution, supports proactive and full-featured remote



APC's PowerChute *plus* and PowerXtend plug-in, bundled with Intel's LANDesk Server Manager Pro v3.0, offers comprehensive power monitoring and UPS management to achieve maximum network uptime.



Buy now and get a FREE APC Smart-UPS 700 and PowerChute *plus* software (\$499 value) with the purchase of Intel LANDesk Server Manager Pro.* Offer expires January 31st 1998.

Manager. You can also configure Smart-UPS operation and alarms (eg. safe voltage window; low battery warning) and perform UPS diagnostics (eg. battery self-tests) - all from your centralized server management console.

emergency management. Intel LANDesk Server Manager Software, a software-only version, keeps PC servers up and running in environments that don't require the robust functionality of Server Manager Pro.

APC Smart-UPS gives you instantaneous battery back-up power to keep servers up an running during a power sag or outage, and premium surge suppression to protect against hardware damage and data corruption.

PowerChute *plus* software with PowerXtend plug-in offers comprehensive UPS management and monitoring so you can easily protect vital servers and elimi-

nate the worry of UPS maintenance. APC PowerXtend plugs an expanded set of power-related MIF (Management Information File) groups into LANDesk Server Manager. You get real-time power information for any DMI-compliant server on the network via Intel LANDesk Server

Manager. You can also configure Smart-UPS operation and alarms (eg. safe voltage window; low battery warning) and perform UPS diagnostics (eg. battery self-tests) - all from your centralized server management console.

A Powerful Combo for Bullet-Proof Server Management

APC Smart-UPS and PowerChute *plus* power protection and management capabilities seamlessly integrate with LANDesk Server Manager products to provide maximum uptime and matchless peace of mind. Instead of calculating the lost productivity and revenue due to server downtime, you can attend to more important tasks, like managing your network or moving into a corner office.

For information call
Intel:
800-788-2286 x205

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**OFTEN, NOTHING COSTS YOU MORE
THAN A SERVER CRASH.**



NOW SUPERIOR SERVER PROTECTION COSTS YOU NEXT TO NOTHING.

NOW AWARD-WINNING APC® PROTECTION COMES STANDARD WITH THESE SYSTEMS.

WORKGROUP SERVER

DELL® POWEREDGE® 2200 SERVER

266MHz PENTIUM® II PROCESSOR
(Expandable to Dual Processors)

- 128MB EDO ECC Memory (512MB Max)
- 512KB Dedicated L2 Cache
- Integrated PCI Ultra/Wide SCSI-3 Controller
- 4GB Ultra/Wide SCSI-3 Hard Drive
- 24X Max/12X Min Variable SCSI CD-ROM Drive
- Intel Pro/100B PCI Ethernet Adapter
- Intel LANDesk® Server Manager v2.52
- Windows NT® Server 4.0
- 12/24GB Variable Tape Backup Unit

- 800HS Trinitron® Monitor (13.7" v.i.s.)
- ★ **Smart-UPS 700 from APC**
- ★ **Free PowerChute Plus Software**
- ★ **Optional SmartSlot™ Power Management Accessories**
- 3 Years of NBD On-site* Service
- 7x24 Dedicated Server Hardware Technical Telephone Support

\$6679

Business Lease*: \$232/Mo.
Order Code: 200273

DEPARTMENTAL SERVER

DELL POWEREDGE 4200 SERVER

266MHz PENTIUM II PROCESSOR
(Expandable to Dual Processors)

- 96MB EDO ECC Memory (512MB Max)
- 512KB Integrated L2 Cache
- 2 Integrated Ultra SCSI-3 Controllers
- 3x4GB Ultra/Wide SCSI-3 Hard Drives
- PowerEdge Expandable RAID Controller
- 24X Max/12X Min Variable SCSI CD-ROM Drive
- Intel Pro/100B PCI Ethernet Adapter
- Intel LANDesk Server Manager v2.52
- ★ **Smart-UPS 1400 from APC**
- ★ **Free PowerChute Plus Software**

- ★ **Optional SmartSlot Power Management Accessories**
- 3 Year Limited Warranty† with 1 Year of NBD On-site* Service
- 1 Year DirectLine™ NOS Support
- 7x24 Dedicated Server Hardware Technical Telephone Support
- ★ **Add Windows NT Server 4.0 for \$799.**

\$9069

Business Lease: \$316/Mo.
Order Code: 200274

ENTERPRISE SERVER

DELL POWEREDGE 6100 SERVER

2x200MHz PENTIUM® PRO PROCESSORS
(Expandable to Quad Processors)

- 256MB EDO ECC Memory (4GB Max)
- 512KB Integrated L2 Cache per Proc.
- 2 Integrated PCI Ultra/Wide SCSI-3 Controllers
- 3x9GB Ultra/Wide SCSI-3 Hard Drives
- 24X Max/12X Variable Min SCSI CD-ROM Drive
- Intel Pro/100B PCI Ethernet Adapter
- Intel LANDesk Server Manager v2.52
- Redundant Hot-Swap Power Supplies
- ★ **Smart-UPS 1400 from APC**

- ★ **Free PowerChute Plus Software**
- ★ **Optional SmartSlot Power Management Accessories**
- 3 Years of NBD On-site* Service
- 1 Year DirectLine NOS Support
- 7x24 Dedicated Server Hardware Technical Telephone Support
- ★ **Add Windows NT Server 4.0 for \$799.**

\$17,409

Business Lease: \$574/Mo.
Order Code: 200276

Given everything that's riding on your company's servers, crash protection is something you can't afford to be without. Which is why every Dell® PowerEdge® Server comes with the industry-standard features you've come to expect. And since 45%† of all data loss is a result of bad power, we've just done something to bolster our award-winning reliability. We have worked with APC, the industry leader in power protection with over 8 million satisfied customers and a host of awards. Which means you'll find APC protection available across the entire line of PowerEdge servers, along with a \$25,000 Lifetime Equipment Protection guarantee* to replace or repair your server should a power-related problem arise. Choose a Dell PowerEdge. For high-end reliability there's the Dell PowerEdge 6100, loaded with redundant cooling fans, ECC memory, hot-pluggable drives and the Smart-UPS 1400 with optional SmartSlot™ Power Management accessories. Choose the Dell PowerEdge 4200, which also comes with APC Smart-UPS 1400 or the Dell PowerEdge 2200, where only the price is entry level. Whichever you choose, two features remain consistent: reliability and value. Things no business can afford to overlook.

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GSA Contract #GS-35F-4076D

Keycode #30025

†For a complete copy of our Guarantees or Limited Warranties, please write Dell USA L.P., One Dell Way, Round Rock, TX 78682. Attn: Warranty. *See APC policy for details. †1993 Contingency Planning Research. ‡Leasing arranged by third-party leasing companies to qualified customers. *On-site service provided by an independent third-party provider. May not be available in certain remote areas. *Prices and specifications valid in the U.S. only and subject to change without notice. APC, the APC logo, Smart-UPS, PowerChute and Protect ME! logo are registered trademarks, and Protect ME! and SmartSlot are trademarks of American Power Conversion, Inc. Intel and Pentium and LANDesk are registered trademarks of Intel Corporation. ©1997 Dell Computer Corporation. All rights reserved.

Introducing APC's network PowerBundle™: Over \$1000 worth of FREE power protection products

Buy total bulletproof protection for a 16 node network for \$2330 (less than \$146 a seat)



Network Bundle Means Fast, Easy Peace of Mind



APC provides the hardware and software solutions you need to protect your entire enterprise from power and environmental problems. Whether it's a server, workstation, hub, router, peripheral or dataline, APC ensures you don't have to worry about bad power causing downtime or damage to your valuable equipment.

Most busy Network Administrators would rather save time than spend time – anytime they can. That's why APC not only makes solutions cross-platform compatible, but also does all your configuration homework for you. The NEW APC PowerBundle gives you bulletproof power protection and complete peace of mind in one easy package.

ORDER at <http://powerbundle.apcc.com> NOW

The PowerBundle!

You Get

- a. 1 Smart-UPS 1000 with PowerChute plus for NT
- b. 8 Back-UPS 400s
- c. 2 ProtectNet pnet4
- d. 1 SurgeArrest, SurgeStation - netB
- e. 1 SurgeArrest SurgeStation proB2
- f. 8 ProtectNet Pnet1 (Ethernet/Token Ring)
- g. 1 ProtectNet for Serial dataline PSP25
- h. 1 SmartSlot Call-UPS II (Remote Management)
- i. 8 PowerManager POW5per

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- 49.95/ea

PowerBundle



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\$2330

Get over \$1000 worth of uptime enhancing products FREE!

Limited Time Offer!

Act now to get APC's pre-configured, One-Stop, Inexpensive, and Incredibly Reliable power protection bundle for your 16-node network. Buy before December 31, 1997 to receive this special offer!

For immediate delivery visit the secure PowerBundle purchase page TODAY.

powerbundle.apcc.com

APC
AMERICAN POWER CONVERSION

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(800)347-FAUX PowerFax • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

APC has won more awards for reliability than all other UPS vendors combined.



APC PowerXtend™ for IBM Netfinity Manager Provides Seamless Integration

APC's PowerXtend for IBM Netfinity Manager is now available FREE from APC's PowerPage™ web site, along with the required PowerChute plus software. PowerXtend is customized power management for server management platforms.

PowerXtend plug-ins work with either PowerChute plus or PowerNet Manager to integrate with IBM Netfinity Manager, Compaq Insight Manager, Intel LANDesk Server Manager and HP NetServer Assistant.

On the Web

In addition to the Netfinity Manager support, PowerXtend power management is now accessible via Netfinity's Web browser management console.

"APC's Smart-UPS provides excellent power protection for IBM's Netfinity 7000 server and IBM's PC servers," says Susan Davi, IBM Product Manager for Netfinity Systems Management. "Now, APC's PowerXtend for Netfinity Manager software provides unsurpassed power management directly from the Netfinity Manager console."

APC and IBM worked together to develop PowerXtend for IBM Netfinity Manager, which allows management of a wide range of UPS attributes. Users can view power status from standard Netfinity Manager monitors in the form of dials and bar graphs. Double-click on a monitor to open the alarm configuration screen for 39 different

attributes. APC's Netfinity Manager support for OS/2 and Windows NT can launch directly from an APC UPS icon in the System Information display.

The IBM Netfinity Alert Manager provides the ability to receive and automatically respond to alerts generated by other Netfinity Manager services. The administrator can configure actions in response to UPS generated events as well as other system-critical events.

PowerXtend for IBM Netfinity Manager adds an Alert Action Handler to the Windows NT and OS/2 versions to provide system shutdown with UPS turn-off. The plug-in for

OS/2 and Windows NT also allow for scheduled self tests and battery calibrations of the UPS.

In short, customers will find PowerXtend for Netfinity Manager very convenient: They can use native Netfinity screens for all their power monitoring and alarm configuration.

About the Platform

IBM Netfinity Manager is an entry level LAN management solution that manages Windows 3.1, Windows 95, Windows NT, OS/2 and Novell NetWare. It is included with virtually every server and desktop machine which IBM sells.

IBM Netfinity provides system information for managed servers and other systems. It collects hardware and operating system information from servers

"APC's Smart-UPS provides excellent power protection for IBM's Netfinity 7000 server and IBM's PC servers."

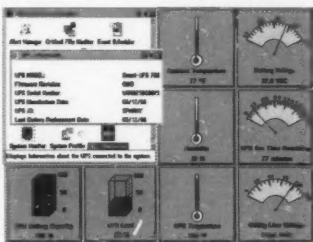
*-Susan Davi,
IBM Product Manager
for Netfinity Systems Manager*

across a network. IBM lists APC on its web site as one of the third party vendors "that seamlessly integrate with TME10 Netfinity Manager." APC is the only UPS vendor to offer power integration with IBM Netfinity Manager and the only UPS vendor to which the IBM web site offers a hot link.

PowerXtend Allows Viewing from the Following Monitors:

- Run Time Remaining
- UPS Load
- UPS Temperature
- Ambient Humidity (with APC Measure-UPS™ accessory)
- Ambient Temperature (with APC Measure-UPS accessory)
- Battery Capacity
- Battery Voltage
- System Inventory Information (i.e. model, firmware version, serial number, manufacture date, ID and last battery replacement date).

Visit APC's web page at: <http://www.apcc.com>
To download APC's PowerXtend for IBM Netfinity for Windows NT, OS/2, or Netware now!



APC PowerXtend for IBM Netfinity offers a management solution for a wide range of UPS attributes. Visit the PowerPage™ or call the toll-free APC Customer Service Hotline for more information.

New PowerChute® plus for SCO UNIX



APC prides itself on being on high technology's cutting edge, ensuring that its products are fully compatible with various network and workstation operating systems. The same holds true for all the various "flavors" of UNIX.

Recently, APC has announced its intention to include PowerChute plus for SCO UNIX on the bundled software included with Smart-UPS™ units. Now those who have come to rely on APC power protection solutions and SCO UNIX operability can combine the two for even more efficiency.

Via the included CD, SCO UNIX users may now enjoy features such as power crisis manage-

ment, unattended/scheduled system shutdown and real-time graphical user interface (GUI) that have made PowerChute plus an award-winner.

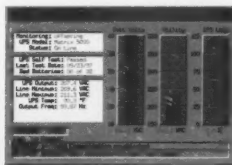
FREE Download

In addition, SCO UNIX users who already own an APC UPS may download the software directly from APC's PowerPage™ web site at <http://adisk.apcc.com>. Choose SCO UNIX.

The two files to download are pscso.tar (PowerChute

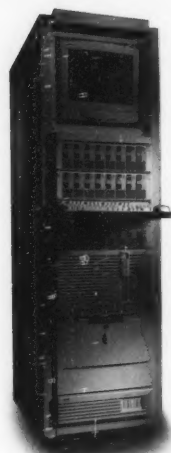
plus 4.2.2 for SCO UNIX) and relsco.txt (Release Notes).

For more information about PowerChute plus for SCO UNIX, call our Toll-free Customer Service Hotline.



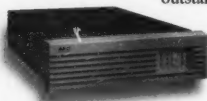
Now SCO Unix users can enjoy the features, such as power crisis management, unattended/scheduled system shutdown, which have made PowerChute™ plus an award-winner. Visit the PowerPage at <http://ademo.apcc.com> for a FREE demo disk

**NEW
PRODUCT**



The New HP NetServer LXr Pro and HP Customized APC Smart-UPS® NS

With businesses becoming more dependent on technology by the day, there's never a good time for a server to go down. The HP NetServer LXr Pro Rack Solution and APC Smart-UPS NS work in harmony to offer outstanding manageability, and reliability in a small footprint. The result? Maximum



uptime. HP's NetServer LXr contains an Intel Pentium Pro 200 MHz processor with 512 Kb cache (1 MB optional) and up to four-way multiprocessing.

APC's Smart-UPS NS has the same look and feel as the NetServer LX and includes award-winning PowerChute® *plus* software. Two APC PowerXtend software plug-ins are included to ensure complete integration with HP servers and enterprise management tools, HP OpenView and HP NetServer Assistant.

**Fastest four-way*. Legendary power protection.
Now you're ready to Rack**



**HEWLETT®
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*Based on benchmark numbers of 9.198 TPM © 1997 Hewlett-Packard Company - ©1997 APC, American Power Conversion

"The Store Owner Said Not to Worry About Buying a New SurgeArrest; APC Would Send Me a New One Free as Part of Their Lifetime Guarantee."

"In early June '97 we experienced a very bad lightning storm. We get very severe lightning storms here, in general. In fact, twice before we have lost our phones because of lightning hits.

"When I got my computer in January '97, my son-in-law said I should make sure to get a good surge protector. My local computer store, ES Computer Systems in New Boston, Texas, recommended APC. In fact, that was the only brand they carried.

"In this most recent storm, we had about 20 garden club guests in the house, so I was busy and had forgotten to unplug the computers and phones as I usually do during the severe storms. I was standing right by the desk with several of my guests when we heard quite a loud pop.

"There goes your computer", said one of my guests, and I had no doubt that she was correct.

"Later, once everyone had gone home, my husband turned on the computer to check out the extent of the damage, and to our surprise,

the computer and modem were working just fine! Only the APC SurgeArrest was damaged, through the phone lines.

"I took the SurgeArrest back to the store to buy another one, already delighted with it since it had protected my new computer. The store proprietor said not to worry about buying a new one; APC would just send me a new one free as part of their Lifetime Guarantee.

"I am very impressed with this product and this company, particularly because I know how severe the storms are here in Texas. It is great to know that there is a quality product protecting our expensive electronic equipment, as well as a company that stands behind its promise."



Home & Office

Shirley Daniel
New Boston, Texas

"I Conservatively Estimate That I Have Saved at Least \$1,640 by Using the SurgeArrests, for My Initial Investment of \$133."

"I've known of APC and its products for a number of years. It seemed only logical to turn to them to prevent a repeat of a very costly 'Housewarming Present' we received a week after our move in September 1993 to a small town near the coast in North Carolina. The unwelcome present was a power surge from a severe thunderstorm caused by a passing hurricane.



Home & Office

James Rowland Eshleman
Tyner, North Carolina

"The surge destroyed the circuit board in our garage door opener, our new digital answering machine, 2 TVs, a VCR, and a clock/radio. The surge had come through both the power and phone lines. The surge through the phone line was so severe that the phone line fused to the answering machine!

"We spent roughly \$700 to repair or replace the items not to speak of the inconvenience just after moving. Fortunately, at the time we had an APC SurgeArrest protecting our home computer and the computer was absolutely fine. I immediately purchased five more SurgeArrests and am now protecting all these appliances and electronic equipment in our home including the microwave oven, refrigerator, garage door opener, and the answering machine that have sensitive electronics in them.

"People pretty much know about the need to have surge protection, if not a UPS on their computers, but often overlook the other appliances. If you stop and think about it, the cost to repair or replace any of these items exceeds the price of a SurgeArrest. An ideal house would have a SurgeArrest on each outlet.

"In the past four years we have had many severe storms causing surges that resulted in the SurgeArrests giving their all to protect the equip-

ment plugged into them. In all cases, no damage was done to our equipment and APC promptly replaced the damaged SurgeArrests under their Lifetime Warranty, at no cost to us.

"An ice storm in February 1996 resulted in a power outage and when power was restored, it came as a surge that took out 4 of the SurgeArrests protecting our answering machine, TV, VCR, garage door opener, and microwave.

"A thunderstorm in June 1996 took out five of the SurgeArrests protecting our answering machine, TV, VCR, garage door opener, refrigerator, and microwave.

"Again, in February of 1997, a tree fell on power lines causing a high voltage line to contact a low voltage line and send another surge that knocked out 3 SurgeArrests protecting the garage door opener, refrigerator, and microwave.

"Based on 1993 repair/replacement costs for lost or damaged items, I conservatively estimate that I have saved at least \$1,640 by using the SurgeArrests, for my initial investment of \$133. An excellent return on investment, in my opinion!

"All surge protectors are not the same. I know because I lost a TV and VCR in that first storm that were supposedly protected by a 'Brand X' protector. I insist on APC products, the best available."

Don't miss the
special SurgeArrest
offer on page 18!

APC Smart-UPS® Protects CDS' Ideal 'Time Machine'



Commercial Data Servers, Inc. (CDS) of Sunnyvale, CA, recently released its CDS 2000, an enterprise server for companies seeking to conform to Year 2000 compliance. CDS has launched into the development and marketing of enterprise servers for the IBM S/370 and S/390 commercial computing environments. The company also has shown its concern for power protection by providing APC products with its server.

"There are up to 10,000 S/370 compatible processors out there that won't work after midnight on December 31, 1999," said Kevin Murphy, president of CDS, in a release. "The CDS 2000 is an integrated solution that can assist in transforming non-year 2000 compliant computing environments into robust engines for the next millennium."

The server contains the IBM S/390 CPU and can be loaded with either the OS/390™, VM/ESA®, or VSE/ESA™ operating systems. Once loaded, the software is preconfigured, Year 2000-enabled and "ready to work," when powered up.

Speaking of Power

CDS chose to include APC's Smart-UPS® 2200 with its server, to provide 30 minutes of runtime during a power disturbance or outage. Smart-UPS 2200 also comes with APC's award-winning PowerChute® plus software. CDS lists several key attributes to using both the Smart-UPS and PowerChute plus in the CDS 2000's product spec-

ifications. Noted are Smart-UPS integrated power and environmental monitoring via PowerChute plus, alarms to indicate power failure and automated shutdown.

CDS Gets What It Wants: APC

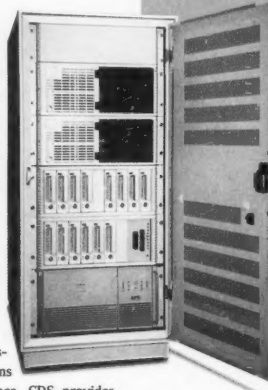
"We chose the APC UPS for the CDS2000 because, of all the products that we evaluated, it had many desirable capabilities that we needed, such as power and environmental monitoring," said Steve Anderes, manufacturing manager at CDS. "We continue to remain very pleased with the APC products and plan to continue building them into our CDS 2000 systems."

The Ideal Time Machine

Most people in the IT industry are aware of the problems posed by Year 2000 compliance. CDS provides solutions for companies who would otherwise wait until the end of the millennium with a growing sense of dread, never knowing whether their valuable data would be lost. APC provides solutions for power disturbances that can happen at any

"We chose the APC UPS for the CDS2000 because of all the products that we evaluated, it had many desirable capabilities that we needed..."

— Steve Anderes,
Manufacturing
Manager, Commercial
Data Servers, Inc.



moment, regardless of what year it is. By teaming with APC, CDS has shown foresight in its Year 2000 solution, giving their customers protection far beyond 2000. As its own release states, it is the "ideal Year 2000 'time machine.'"

For more information about using APC products in a bundle solution the way CDS has used Smart-UPS, or if you want to join the

ProtectME! with APC program, call Kurt Gallo, APC Channel Manager at 401-789-5735 x 3139.

For more information about Commercial Data Servers' CDS 2000, call toll-free 1 (800) 757-3282 or visit their web site at <http://www.cdats.com>.

APC and IBM Bring Customers POS Power Solutions



Taking a further step to integrate into IBM's retail offerings, APC has announced new power management capabilities for the IBM 4690 point of sale (POS) operating system.

IBM terminal operators can now be informed of a power outage, the status of the remaining power from APC's uninterruptible power supply (UPS), and the restoration of power after an outage through messages on their point of sale screens. These terminal messages enable operators to determine if they should complete the sale or shut the terminal down in an orderly manner.

"Once again, APC is proud to work with IBM in better supporting the power management needs of its customers," said Todd Bermont, APC's director of global alliances. "This integration combined with APC's PowerXtend™ for IBM's Netfinity provides a complete enterprise solution for IBM point of sale environments."

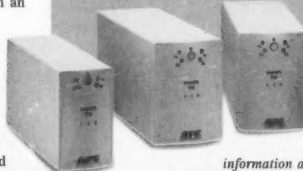
Available immediately through IBM in maintenance release #9720, APC UPS signaling provides messaging and event logging for increased management at the IBM POS terminal. Information concerning the customer's power environment can be accessed locally or remotely. This integration sup-

ports 4693 and 4694 terminals with RS232 interfaces.

For more information about APC protection of point of sale systems or its other solutions for IBM customers, call the toll free APC customer service hotline, or visit APC's PowerPage™ on the web at <http://www.apcc.com>.

"Once again, APC is proud to work with IBM..."

— Todd Bermont, APC's director
of global alliances



Call the toll-free APC Customer Service Hotline now for more information about the APC power protection solutions for IBM POS systems that meet your needs.

El Niño Predicted To Be Severe This Year Will Your Electronics Be Protected?

Not your average power
outlet...El Niño promises
to join forces with Mother
Nature this year in an
effort to destroy your
computer equipment.

*"El Niño...is a very awe-
some event. It's like
watching St. Helens
erupt in slow motion."*

— Nick Green, Scripps Institution of
Oceanography, as told to CNN, 8/20/97

El Niño, Spanish for "the little one," is a weather cycle in the tropical Pacific that during its most active periods can affect weather patterns

across the globe. It normally occurs every three to five years and lasts for months. Its influences are seen as increased ocean temperatures in some areas, and violent storms.

In August of 1983, the effects of El Niño were felt in Arizona, where high winds and heavy rains caused floods and toppled power lines. In nearby California, dozens of homes were

destroyed along the coastline.

According to a report from CNN, "...scientists at the Scripps Institution of Oceanography at the University of California at San Diego warned...that precipitation patterns could be severely disrupted this winter in many parts of the United States. New predictions from both government and private scientists say the latest El Niño could be a severe one."

The Institute's Nick Green said in the same article, "Every piece of evidence we get as time goes along shows us El Niño (is) continuing to evolve, continuing to be a very powerful, very awesome event. It's like watching Mount St. Helens erupt in slow motion."

El Niño will most likely influence and disrupt precipitation patterns throughout the United States. For the eastern and southwestern U.S., it could mean triple the amount of rain or snow. For the west, it could mean heavy erosion along the Pacific coast. In the northwest, it could mean less rain or droughts.

What does this mean to you as you're currently typing away at your PC, oblivious to the worsening weather, or clicking through channels on your big screen? When these intense and frequent storms hit, they'll increase the frequency of felled trees knocking out power lines. They'll increase the frequency of lightning strikes which could overload electronic circuitry. They'll just plain increase the common headaches of winter storms and their repercussions.

"The last bout with El Niño, in 1993 and 1994, was not a severe one," according to the CNN report, "But those with longer memories may recall the devastation during 1983, which led to global damage estimated at \$25 billion."

Lightning Five times Hotter than Sun! Facts from APC, Manufacturer of The World's Most Reliable Power Protection

Lightning is a force of nature that fascinates us as much as makes us fear it. We all know how to count the time between lightning and thunder, but in a few minutes you'll be able to amaze your friends with incredible facts about lightning.

Although thought to be an uncommon occurrence, lightning actually hits the earth about 100 times per second. That makes about 8 million strikes per day! The United States alone experiences over 20 million lightning strikes per year. Scientists have estimated that at any given moment there are nearly 2000 thunderstorms occurring over the earth's surface. That means about 100,000 thunderstorms annually for the U.S.

Cloud to ground lightning occurs when negative charges at a cloud's base are attracted to positive ones on the earth. A surge is created which carries current to the ground. This bolt typically contains about 1 billion volts and between 10 to 20 thousand amperes of current. What happens next is called a "return stroke" which is revealed as the bright flash.

The average lightning stroke is about 6 miles long. The flash appears wider than it actually is

due to the glowing air surrounding it. Lightning's return stroke can reach 50,000 degrees Fahrenheit. To put this blast in perspective, the surface of the sun is only about 11,000 degrees.

Lightning may occur even with a clear sky overhead. A thunderstorm need only be within 10 miles for cloud to ground lightning to originate from high altitude anvil clouds. The thunder that follows the lightning bolt can be heard up to 10 miles away.

Thunder is essentially the air around the lightning exploding due to high temperature. Lightning "cooks" the surrounding air to between 15,000 and 50,000 degrees. The sound is relative. If the strike is close by, the louder the thunder's "bang." Rumbling thunder is the "clap" arriving at a different time due to distance and the length of the lightning.

Annual property loss in the United States due to lightning has been estimated into the hundreds of millions of dollars. Much of this damage is to sensitive electronics that suffered surge damage as the result of a nearby lightning strike.

Compiled with information from The Weather Channel, Automated Weather Service, Inc., and Global Atmospheric, Inc.

Only \$219! APC Holiday Offer Makes Shopping a Breeze!

It's that time of year, again. If you burn the candle at both ends like most busy executives, you may find simply completing your holiday shopping, not to mention finding the right gift for everyone, a real challenge.

This year, APC has decided to give you a helping hand with that shopping list. We've put together a package that will give you five cheerfully wrapped gifts, another both wrapped and enclosed in a special gift-box, and a unit for yourself.

The package includes seven items that everyone needs: SurgeArrest surge suppressors from APC.

The gift package includes two SurgeArrest SurgeStations, one of them in a special gift box (first 400 responses only). In addition to the SurgeStations, you'll get five personal SurgeArrests with telephone line protection - all gift wrapped as well. See coupon on page 19.

With over 8,000,000 users worldwide already, you can be sure that if your recipient has a computer, TV, VCR, stereo, microwave or any other sensitive electronics, you'll get hearty thanks for the present.

All you have to do to take advantage of the offer is fill out the coupon on page 19, send it to APC, and we'll send you the wrapped and ready SurgeArrest units so you can spread holiday cheer.

You may not be able to give your friends \$25,000, but SurgeArrest is backed by a up to \$25,000 Lifetime Equipment Protection policy which is the next best thing. (see policy)



Ensure the Value of Your IT Strategy with APC PowerAudit™

PowerAudit is on-site power quality consulting, providing information systems with unmatched reliability, productivity and uptime. APC's engineers are well-versed in the National Electric Code (NEC) and the standards set forth by the Institute of Electrical and Electronics Engineers (IEEE), specifically the IEEE Standard 1100-1992.

All too often, electricians may have followed standards of the NEC (which is required by law), but seldom follow the more rigorous standards of the IEEE.

PowerAudits are separated into two distinct services. For the manager about to build a network or plan a company's information technology strategy, APC offers the Enterprise Planning PowerAudit. For existing networks, APC recommends its Enterprise Recovery PowerAudit. Both cost less than you think and are performed by the most competent Power Quality Engineers in the business. When you consider your investment in your network, and want guaranteed "Power Value," look to the world leader in power protection: APC!

Download a sample PowerAudit at <http://apoweraudit.apcc.com>



Datacenter Solutions ... Continued from page 1

A variety of configurations, dependable components and full compatibility make award-winning Matrix a smart and obvious choice.

Symmetra™: Powering Into the Future

When your datacenter needs exceed the 3 to 5 kVA range into the 6 to 20 kVA UPS area, you enter into a whole new product category from American Power Conversion. For that much power, you need APC's Symmetra™ Power Array™.

The Power Array design is comparable to the design of a Redundant Array of Independent Disks (RAID). It is a single unit composed of smaller, modular units which allow for greater scalability. It's this design that helps Symmetra eliminate any single point of failure. The Power Array incorporates APC's power-sharing technology. Multiple power modules share the connected load. If any module fails or is removed, the other modules take over the load.

As is usual with APC products, various options and models are available. Symmetra models include the MiniFrame and the MasterFrame. The MasterFrame can be configured to 16kVA with four modules for N or five for N+1 redundancy.

Every Power Array frame includes both

a Main Intelligence Module, a Redundant Intelligence Module and the PowerView™ display. All Power Array adjustments can be made while systems are running and protected.

In combination with redundancy, Symmetra also provides customization. It is compatible with PowerChute plus and PowerNet SNMP software as well as other APC UPS accessories such as SmartSlots.

Symmetra Power Array combines the four most critical aspects of datacenter protection: redundancy, scalability, manageability and serviceability. With datacenter power requirements changing as quickly as the technology, it provides the ability to adapt without complete reinvestment and guarantees your power needs will be met now and well into the future.

Protect Your Datacenter

Matrix, Symmetra and APC's PowerAudit will provide top of the line protection from the industry leader: APC. For more information about either of the products or service, call your local APC reseller, fax the reply card at the back of the magazine to our Resource Center for free literature or call us toll-free at 1-888-289-2722 x 8024. For instant information, visit APC's PowerPage™ on the web at <http://www.apcc.com>.

Action	APC
Inspect all electrical distribution components (Note 1)	✓
Ensure National Electrical Code compliance in building	✓
Ensure TIA/EIA standards compliance in building	✓
Develop a detailed corrective action plan	✓
Full-time staff of certified Power Quality Engineers	✓
Ensure IEEE compliance within building	✓
Develop a custom-tailored power protection plan (Note 1)	✓
Provide a professionally prepared report (Note 2)	✓
Complete "power" sizing of information technology equipment	✓
Complete a network topology inspection	✓
Complete a downtime analysis/network risk assessment	✓



APC's Power Quality Engineers can provide you with a custom-tailored power protection plan.

Note 1: The utility company will not normally enter the building.
Note 2: The report structure varies quite dramatically.

Implementing Microsoft NT Enterprise Clusters? APC Did Your Power Protection Homework for You

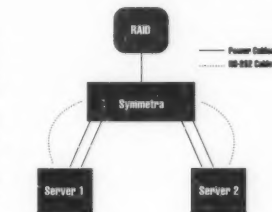
Designed for

**Microsoft®
BackOffice™**

Power protection is a critical and mandatory component of clustered server environments. Downtime hours are often measured in millions of dollars making high availability the driving requirement. While clustering technology provides high availability, the cluster as a whole is still susceptible to power problems which are the largest cause of computer data loss [45% of the cases], according to Contingency Planning.

Microsoft Cluster Server

APC's current product line supports Microsoft's newly introduced clustering solution, Microsoft Cluster Server, a feature of Windows NT Server, Enterprise Edition 4.0 with proven software and hardware components that cluster administrators can rely on. "Our customers will depend on Windows NT Server, Enterprise Edition 4.0 clusters for their most mission critical applications, so they can't afford downtime



Server cluster connected to single fault-tolerant, redundant Power Array™. For more details see the white paper at www.apcc.com

because of power failures," said Enzo Schiano, group product manager for Windows NT Server at Microsoft. "We're pleased that APC is enabling Microsoft customers to easily protect and manage their power in the clustered server environment."

White Paper Available

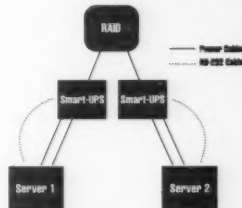
After extensive testing in its labs, APC has authored a technical white paper that defines proper uninterruptible power supply (UPS) configurations for Microsoft Cluster Server environments. The move continues APC's long-term support for Microsoft Windows NT Workstation and Windows NT Server, which includes Microsoft BackOffice™ certification for APC's PowerChute® plus UPS management software. APC is the only UPS manufacturer that has received this certification from Microsoft.

Software Support

For UPS monitoring and configuring, APC recommends its award-winning UPS monitoring software, PowerChute® plus. Version 5.0.1 for Windows NT has been thor-

oughly tested with a number of hardware configurations running Windows NT, Enterprise Edition version 4.0 and Microsoft Cluster Server.

APC is committed to supporting future versions of Microsoft's clustering technology.



Cluster with dual-input power cord servers protected by two uninterruptible power supplies

Customers can choose an APC solution with the knowledge that their investment (in both hardware and knowledge) can be leveraged as their clustering needs grow.

APC's white paper, outlining appropriate UPS configurations for clustering environments, can be downloaded from APC's web site at <http://www.apcc.com/english/alys/prtnr/prtnr002.htm>

**Microsoft Certified
Solution Provider**



APC Smart-UPS, one of APC's most popular and acclaimed units with be available at a significant price reduction after November 1. For more information, call your local reseller, or visit APC's web page at <http://dealerlocator.apcc.com> to find the APC dealer nearest you.

Efficiency Sparks up to 30% Price Cut on APC's Most Popular Products

Continuous efforts in the area of quality management and process improvement have led to dramatic gains in manufacturing efficiency. The net results of these gains has been a significant cost savings company-wide at APC. We'd now like to pass that savings on to our valued customers.

Starting November 1, the prices on some of the most popular APC products, including Smart-UPS and Back-UPS, will be cut by up to 30 percent. That means there's no better time than the present to invest in APC power protection, so get in touch with your favorite APC reseller or distributor and start saving!

APC Enterprise Management Solutions Save Big Business Over \$100,000 per Hour

Today's complex Enterprise Network environment mixes legacy systems with new client-server systems. Add telecom systems and web based corporate intranets, and the need for power protection quickly increases tenfold over the needs of a few years ago. To maintain productivity and profitability, Enterprise Administrators must monitor, configure and manage not only their servers and internetworking equipment, but also their power resources from Enterprise Management Platforms like HP OpenView or Computer Associates' Unicenter TNG.

APC is the only company that integrates with all major Enterprise Management Platforms. You may find the following scenario easy to imagine:

A power failure occurs at one of your remote offices. As a result of the failure, your help desk is immediately flooded with support questions.

"Did you know the power is out here?"

"Will the power outage affect the other processing system?"

"How do I shut down the server properly?"

"Is there time to finish my task before UPS batteries run out?"

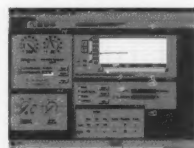
APC power management and monitoring solutions answer all of these questions and more, long before the power event results in data loss or unnecessary downtime. The cost of that downtime can range from \$10,000 to \$100,000 per hour depending on the size of the business. (Source: Contingency Planning)

APC PowerNet™, the software linchpin of APC Enterprise power management solutions, lets you quickly identify, diagnose and solve problems. The PowerNet product line provides comprehensive power-related information at your Enterprise Management console to help minimize downtime and maximize your investment in the power protection provided by APC UPS units.

PowerNet Trio Perfects Enterprise Power Management

1. PowerNet Managers maximize your power management by presenting all UPS information in an intuitive graphical display. Instead of having to

spend time using a MIB browser, the administrator can use his time more efficiently because he has all the power related information represented.



This comprehensive display of UPS information allows full diagnostics and control from one screen. Icons, strip charts and bar graphs make it easy to visually determine UPS and power status at a glance. You can also initiate a shutdown and reboot your UPS and connected server and internetworking equipment from your PowerNet Manager console.

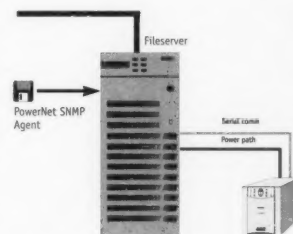
"We are pleased that APC has chosen to integrate with HP OpenView's NNM on Windows NT. APC's new PowerNet SNMP Manager...offers users the ability to remotely manage APC's UPSs on the network."

— Oliver Helleboid, general manager of HP's Network and System Management Division.

an independent node in the network for full independent control and diagnostics.

Whether you use PowerNet to remotely reboot locked servers and internetworking equipment or to guarantee safe, reliable server shutdown you will enjoy a tremendous decrease in management and staffing costs and a pleasant increase in peace of mind. The PowerNet Adapter, in conjunction with the SmartSlot™ Measure-UPS™ II, will also send alarms when critical thresholds in temperature or humidity are crossed, which protects network hardware from damage. You can configure the adapter either locally through a serial port or remotely using a telnet console, and the adapter configuration menu supports repetitive configurations for a network rollout.

3. The APC PowerNet™ Agent screen provides the same information but without the added cost of hardware. PowerNet SNMP Agent software, a powerful PowerChute™ plus plug-in, adds SNMP management of UPSs protecting servers to all the



Visit <http://ademo.apcc.com> for a free demo of APC PowerChute plus and PowerNet Manager.

capabilities of APC solutions including safe server shutdown. PowerNet Agent is the most cost-effective way to obtain SNMP management of UPS power and reliable shutdown for servers.

PowerNet™ Adapters and Agents are compatible with:

- CA Unicenter TNG
- CA POLYCENTER
- Cabletron Spectrum
- HP OpenView
- Novell ManageWise
- SunNet Manager
- Tivoli NetView
- Sun Solstice Enterprise Manager
- Tivoli TME 10
- UB NetDirector
- and other Enterprise Management Platforms

PowerNet™ SNMP Manager supports:

- CA Unicenter TNG (part #AP9401)
- CA POLYCENTER (part #AP9401)
- Cabletron Spectrum (part #AP9401)
- HP OpenView Network Node Manager on NT and UNIX (part #AP9401)
- HP OpenView for Windows (part #AP9402)
- Novell ManageWise (part #AP9400)
- SunNet Manager (part #AP9401)
- Tivoli NetView (part #AP9401)

Get a PowerBundle™ at <http://powerbundle.apcc.com>

Mail-In Offer

Only \$219 (\$340 Value)

Two SurgeStations™ and Five SurgeArrests® for 35% Off!

Buy two Professional SurgeStations with telephone protection and five Personal SurgeArrests with telephone protection for ONLY \$219! One SurgeStation comes ready to deliver to your favorite computer user: First 400 replies receive a Special Gift-box. All SurgeArrests are gift-wrapped

Just complete this certificate and mail to APC to take advantage of this special offer!



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Just complete this certificate and mail to APC to take advantage of this special offer!



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Mail-In Offer

FREE SurgeArrest® Rack-mount from APC!

Protect your rack-mounted peripherals **FREE With the Purchase of a NetShelter™** between October 1 and November 30.

Just send this completed certificate along with an original NetShelter purchase receipt dated between 10/1/97 and 11/30/97, and get a FREE SurgeArrest Rack-mount from APC!

\$124.99 Value



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AMERICAN POWER CONVERSION

Holiday Seven SurgeArrest® Pack: Only \$219!

☐ **YES!** I'd like to take advantage of the Seven SurgeArrest offer. I've included my MC/VISA/Amex number, expiration date, and signed the form.

Date _____
 Name on Card _____
 Credit Card Number _____ Exp. Date _____
 Signature _____
 Number of SurgeArrest Packs: _____ x \$219.00 = \$ _____ Total (U.S. Dollars)
 Name: _____
 Company/Title: _____
 Address: _____
 City: _____ State: _____ Zip: _____ Ctry: _____
 Phone: _____ E-mail: _____

Additional Terms & Conditions

- Offer good in US & Canada only. Physical evidence not required.
- Offer available to resellers and end-users only.
- APC employees, associates and distributors are excluded.
- Customer can request that their receipt be returned by including a note and a self-addressed stamped envelope with their return request.
- Proof of mailing does not constitute proof of delivery.
- APC is not responsible for lost, late, illegible or incomplete orders or postage-paid, damaged or misdirected mail.
- Prohibited submission of multiple requests.
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- Prohibited submission of multiple requests.

We regret we cannot fulfill incomplete requests. Please fill out completely and mail to:

Dept. AB-CR
 American Power Conversion
 132 Flamingo Road
 P.O. Box 278
 West Kingston, RI 02892

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Holiday Seven SurgeArrest® Pack: Only \$219!

☐ **YES!** I'd like to take advantage of the Seven SurgeArrest offer. I've included my MC/VISA/Amex number, expiration date, and signed the form.

Date _____
 Name on Card _____
 Credit Card Number _____ Exp. Date _____
 Signature _____
 Number of SurgeArrest Packs: _____ x \$219.00 = \$ _____ Total (U.S. Dollars)
 Name: _____
 Company/Title: _____
 Address: _____
 City: _____ State: _____ Zip: _____ Ctry: _____
 Phone: _____ E-mail: _____

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FREE SurgeArrest®

Just send original dated purchase receipt with the NetShelter™ circled.

1. The main reason for purchasing NetShelter was for:
 (Please rank in order of preference - 1 being least important and 2 being most important.)

Organization:
 1 2 3 4 5
 Protection:
 1 2 3 4 5
 Management:
 1 2 3 4 5
 Other: _____

2. How many NetShelters did you purchase?
 1-2 2-4 4-6 8 or more

3. Have you purchased any APC UPS or accessories that fit within the NetShelter enclosure? If so, what kind?
 _____ Share-UPS _____ Smart-UPS _____
 _____ Measure-UPS _____ ProtectNet Chassis _____
 _____ MasterSwitch _____ Rack-mount SurgeArrest _____

4. How many rack-mount type UPSs do you use?
 1-4 5-10 15 or more

5. Type of equipment installed?
 _____ Servers _____ UPS _____
 _____ Routers / Hubs _____ Monitors _____
 Other: _____

6. Type of server installed?
 _____ Dell _____ Compaq _____
 _____ Gateway _____ IBM _____
 Other: _____

7. How did you hear about NetShelter?
 _____ Sales Person _____ Ad _____
 _____ Reseller _____ Distributor _____
 _____ Friend _____

Name: _____
 Company/Title: _____
 Address: _____
 City: _____ State: _____ Zip: _____ Ctry: _____
 Phone: _____ E-mail: _____

Additional Terms & Conditions

- Offer good in US & Canada only. Physical evidence not required.
- Offer available to resellers and end-users only.
- APC employees, associates and distributors are excluded.
- Only original receipts accepted.
- Customer can request that their receipt be returned by including a note and a self-addressed stamped envelope with their return request.
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We regret we cannot fulfill incomplete requests. Please fill out completely and mail to:

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 American Power Conversion
 132 Flamingo Road
 P.O. Box 278
 West Kingston, RI 02892

SERIAL # _____

NETSHELTER SERIAL# CAN BE FOUND INSIDE, AT THE TOP OF THE REAR ENCLOSURE. ALSO LOCATED ON PACKING LABEL BARCODE.

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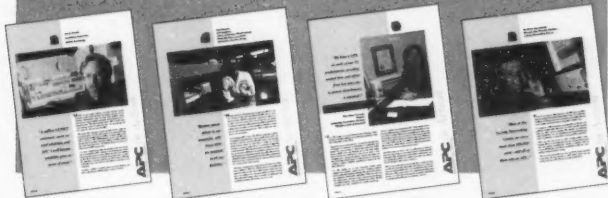
|||

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	800-0100 War/Info	800-0100 United Corp.
	800-0100 Wilmouth, Under G. Samsell	800-0100 Freedom Company
	800-0100 Shells	800-0100 Publishers
	800-0100 Nevada	
	800-0100 Outlook	



Document Description	Doc #
Smart-UPS 3G	1600
Back-UPS Pro	1400
Basic-UPS	1200
PowerChute plus	2000
List Pricing	2400
UPS Sizing Guide	2300
Smart-UPS XL	1620
Matrix	1700
Smart-UPS vs. Back-UPS	1011
UPS Accessories	2100

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1. Chubb

2. Rann

3. Swinn

4. Mike

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Position	Person
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3. Sec'y	200-4770
4. Treas.	200-4770

APC Currents Fax Order Form



You can always find the information you need on the APC PowerPage™...
<http://www.apcc.com>

Check one or more items of interest below and fax your completed order form to 401-789-3710 For immediate response, call 888-289-2722, ext.8182

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- Get VIP Treatment from APC when you visit us at one of several tradeshows!
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- Win prizes by spotting APC in the movies!
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FREE Poster (Limit two per customer)/ APC in Action brochure (Unlimited amounts) See examples on back :

1.Part #
2.Part #
3.Part #
4.Part #

What brand(s) of UPSs and surge suppressors do you use?

What brand(s) of servers do you use?

How many UPSs do you buy per month?

How many servers do you have installed?

How many servers do you purchase per month?

Is this your first contact with APC? ☐ Yes ☐ No

FREE STUFF!

Complete the info at the left and check the free items below that interest you:

☐ **YES!** Send me a FREE Solutions 60-page Power Protection Handbook detailing the latest power protection information from from APC.

☐ **YES!** I'd like a FREE APC in Action brochure or poster. I have entered the part number at left.

☐ **YES!** I'd like a FREE Subscription to the PowerNews™ E-mail news service. I have included my E-mail address at left.

☐ **YES!** Send a FREE Symmetra information video.

☐ **YES!** I'd like to learn more about APC's products and services.

Please send me FREE, detailed information about these products:

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> Back-UPS/Pro | <input type="checkbox"/> Back-UPS Office |
| <input type="checkbox"/> Smart-UPS | <input type="checkbox"/> Matrix-UPS |
| <input type="checkbox"/> Line-R | <input type="checkbox"/> SurgeArrest |
| <input type="checkbox"/> PowerChute | <input type="checkbox"/> PowerManager |
| <input type="checkbox"/> PowerNet | <input type="checkbox"/> ProtectNet |
| <input type="checkbox"/> NetShelter | <input type="checkbox"/> PowerAudit |
| <input type="checkbox"/> MasterSwitch | <input type="checkbox"/> Symmetra |
| <input type="checkbox"/> PowerView | <input type="checkbox"/> Trade-UPS |

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If you've had an interesting experience/application with APC's products, fill out this card and send it in. If we use your story, you get a FREE T-Shirt. Please complete all contact information, including phone number. APC model number involved: _____
Can we print your story in our "Letters" section? ☐ Yes ☐ No



Fold, Then Tape Closed

Fold here

Total Power Protection in Action

APC's Total Power Protection:

- Maximizes productivity
- Minimizes support costs
- Increases uptime
- Protects valuable equipment and data
- Provides peace of mind

APC power protection keeps data flowing safely, whether it's on a home PC or a WAN. With APC you'll run through any power event and shield AC lines, phone lines and datalines from power problems. Use the checklist below and the color application icons to match your systems to APC solutions.

Protect the Path and Protect the Equipment

Home and Office

- ☐ AC Lines
- ☐ Phone Lines
- ☐ Datalines
- ☐ Phone Systems
- ☐ Fax Machines
- ☐ Electronic Registers
- ☐ Peripherals
- ☐ PCs

Peer-to-Peer Networks

- ☐ AC Lines
- ☐ Phone Lines
- ☐ Datalines
- ☐ Install Interface
- ☐ Peripherals (printers, modems, etc.)
- ☐ Workstations

Client-Server Networks

- ☐ AC Lines
- ☐ Phone Lines
- ☐ Datalines
- ☐ Install Interface
- ☐ Peripherals
- ☐ Client Workstation
- ☐ Dedicated Servers

Enterprise-Wide Networks

- ☐ AC Lines
- ☐ Datalines
- ☐ Phone Lines
- ☐ Peripherals
- ☐ Install Interface
- ☐ Servers
- ☐ Web Servers
- ☐ Minicomputers and DASD Boxes
- ☐ Workgroups
- ☐ Smart Hubs
- ☐ Routers

SurgeArrest™	List
SurgeArrest Notebook	\$29.95
Personal SurgeArrest 3 Outlet	\$24.95
Personal SurgeArrest 3 Outlet with Tel	\$34.95
Personal SurgeArrest 3 Outlet with Coax	\$34.95
Personal SurgeArrest 7 Outlet	\$29.95
Personal SurgeArrest 7 Outlet with Tel	\$39.95
Professional SurgeArrest 7 Outlet	\$49.95
Professional SurgeArrest 7 Outlet with Tel	\$59.95
Professional SurgeArrest 7 Outlet with Coax	\$39.95
Network SurgeArrest 3 Outlet	\$39.95
Network SurgeArrest 3 Outlet with Tel	\$69.95
Network SurgeArrest 7 Outlet	\$59.95
Network SurgeArrest 7 Outlet with Tel	\$89.95
Network SurgeArrest Rack-mount 9 Outlet	\$124.99
Professional SurgeStation 8 Outlet	\$59.95
Professional SurgeStation 8 Outlet with Tel	\$69.95
Professional SurgeStation 8 Outlet with Tel and Coax	\$99.95
Network SurgeStation 8 Outlet	\$59.95
Network SurgeStation 8 Outlet with Tel	\$89.95

ProtectNet™ Family

Data line surge suppressors, star

Power

PowerManager
PowerManager

Line-R™

Line-R 600
Line-R 1250

Back-UPS™

Back-UPS 200
Back-UPS 400
Back-UPS 450
Back-UPS 600

Back-UPS™ Office

Back-UPS Office
Back-UPS Office

Back-UPS™ Pro

Back-UPS Pro 280 PNP
Back-UPS Pro 420 PNP
Back-UPS Pro 650 PNP
Back-UPS Pro 1000
Back-UPS Pro 1400

Smart-UPS™

Smart-UPS 400
Smart-UPS 450
Smart-UPS 700
Smart-UPS 1000
Smart-UPS 1400
Smart-UPS 2200
Smart-UPS 3000
Smart-UPS 700RM
Smart-UPS 1000RM
Smart-UPS 1400RM
Smart-UPS 2200RM 3U
Smart-UPS 3000RM 3U
Smart-UPS 700XL
Smart-UPS 1000XL
700XL/1000XL Battery Pack
Smart-UPS 2200XL
2200XL Battery Pack
Smart-UPS 1400XLT
Smart-UPS 2200XLT
Smart-UPS 3000T
Smart-UPS 2200RXL
Smart-UPS 2200RXL Battery Pack

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\$59.95
\$39.95
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\$69.95
\$59.95
\$89.95
\$124.99
\$59.95
\$69.95
\$99.95
\$59.95
\$89.95

Matrix-UPS™	List
Matrix-UPS 3000	\$3599
Matrix-UPS 5000	\$5299
SmartCell™	\$999
SmartCell XR	\$1399

Symmetra™	List
Symmetra MiniFrame	Please Call for Info
Symmetra MasterFrame	Please Call for Info

NetShelter™	List
NetShelter premium enclosure	\$1999
NetShelter expansion rack	\$1699
NetShelter Mounting Rails	\$149
NetShelter Mounting Rail Kit	\$49
NetShelter Mounting Rail Kit (10 lbs.)	\$39
NetShelter Mounting Rail Kit (20 lbs.)	\$99
NetShelter Mounting Rail Kit (30 lbs.)	\$129
NetShelter Mounting Rail Kit (40 lbs.)	\$199
NetShelter Mounting Rail Kit (50 lbs.)	\$239

**Price Cuts
Up to 30%**
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now for details!

Power	List
PowerManager	\$69

Line-R™	List
Line-R 600	\$399
Line-R 1250	\$699

Back-UPS™	List
Back-UPS 200	\$199
Back-UPS 400	\$199
Back-UPS 450	\$199
Back-UPS 600	\$199

Back-UPS™ Office	List
Back-UPS Office	\$499
Back-UPS Office	\$349

Back-UPS™ Pro	List
Back-UPS Pro 280 PNP	\$249
Back-UPS Pro 420 PNP	\$149
Back-UPS Pro 650 PNP	\$149

Smart-UPS™	List
Smart-UPS 400	\$399
Smart-UPS 450	\$399
Smart-UPS 700	\$499
Smart-UPS 1000	\$699
Smart-UPS 1400	\$879
Smart-UPS 2200	\$1429
Smart-UPS 3000	\$2599
Smart-UPS 700RM	\$649
Smart-UPS 1000RM	\$829
Smart-UPS 1400RM	\$1079
Smart-UPS 2200RM 3U	\$1849
Smart-UPS 3000RM 3U	\$2679
Smart-UPS 700XL	\$799
Smart-UPS 1000XL	\$679
700XL/1000XL Battery Pack	\$399
Smart-UPS 2200XL	\$1699
2200XL Battery Pack	\$499
Smart-UPS 1400XLT	\$1999
Smart-UPS 2200XLT	\$2299
Smart-UPS 3000T	\$3149
Smart-UPS 2200RXL	\$2359
Smart-UPS 2200RXL Battery Pack	\$799

MasterSwitch™	List
PowerAudit™	Please Call for Info

Services	List
On Site Service	Please Call for Info
Trade-UPS	Please Call for Info
Warranty Extension	Please Call for Info
Battery Replacement	Please Call for Info

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or E-mail apcinfo@apcc.com

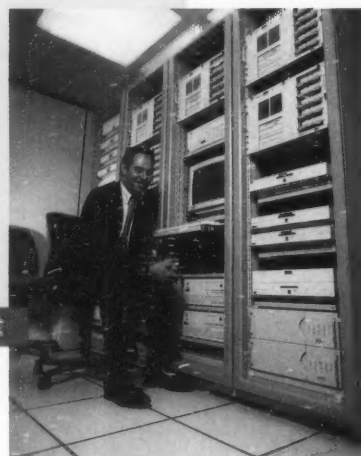
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APC in Action

*"At the Ministry
of Finance, we can
guarantee reliable
data exchanges for
our agents around
the world thanks
to APC's UPS."*

Government

Jean-Luc Testard,
Network/Message service manager, DREE,
Ministry of Finance.



"The French Ministry of Finance has some 2,500 agents working around the world as part of the governmental organization for overseas economic relations (DREE). These people play a key role in supplying up-to-the-minute business information to companies seeking export opportunities and to firms taking their first steps in a new country.

"In the Ministry building in Paris, we have several Compaq Proliant R4500 servers for the SFT3 protected Netware 4.1 network, MS-Mail message service and office systems. We also have a dozen APC UPSs including the new rack-mounted Smart-UPS 1400 VA in 19-inch format which is perfectly adapted to our installations. With frontal battery access for easier maintenance, APC's UPSs strengthen network security for hundreds of world-wide users.

"Three quarters of our agents work overseas in our 115 offices. We need to supply them with a powerful and reliable communication medium.

"Installing APC's 1400 VA rack-mounted Smart-UPS® to protect the power supply to the Compaq rack servers on our Novell network, has allowed us to increase the availability of our systems and to render data exchanges between DREE members more efficient (30,000 messages per month and several MBs of data).

"The PowerChute *plus* management software system provides graceful, unattended system shutdown and gradual start-up of servers, which protects us from power surges and brownouts. We use these solutions in Paris and in our stations abroad where APC's international presence ensures the same quality protection for our local installations."

APC
AMERICAN POWER CONVERSION

DSN-0289

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